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U.S. SCS
REPORT ON
PRESENT AND ANTICIPATED AGRICULTURAL CONDITIONS

U.S. SCS
YAZOO BACKWATER PROJECT
YAZOO RIVER BASIN, MISSISSIPPI
MISSISSIPPI RIVER & TRIBUTARIES PROJECT REVIEW



PREPARED BY THE
U. S. DEPARTMENT OF AGRICULTURE FOR THE
MISSISSIPPI RIVER COMMISSION

SOIL CONSERVATION SERVICE
JACKSON, MISSISSIPPI
APRIL, 1957

AUTHORITY

This report has been prepared by the Soil Conservation Service, U. S. Department of Agriculture, covering studies made under authority of Section 6, Public Law 566, 83rd Congress and upon request of the Mississippi River Commission. Specific request to initiate this particular project area study was made July 17, 1956 by the District Engineer, Vicksburg District, Corps of Engineers, Department of the Army. The basis for study was agreed upon as set forth in the project study statement dated September 21, 1956.

AGENCY PARTICIPATION AND RESPONSIBILITIES

A U. S. Department of Agriculture memorandum of understanding between the Soil Conservation Service, U. S. Forest Service and Agricultural Research Service relating to interagency coordination of programs in Watersheds was consummated February 2, 1956. This memorandum provided for the organization of a Field Advisory Committee consisting of members of the above agencies with the Soil Conservation Service representative as chairman. Responsibilities of each agency were outlined by this Field Advisory Committee and incorporated in Mississippi River & Tributary Project Study General Memorandum Number 1.

The Soil Conservation Service has primary responsibility in classifying the soils of the area in accordance with an established legend. It has estimated land use and cropping patterns, extent and cost of land use conversions, extent and cost of farm and group drainage systems, extent and cost of farm irrigation systems for row crop and pasture lands.

The Agricultural Research Service has primary responsibility for developing field crop and livestock commodity price data, production cost for field crops and livestock enterprises, interest rates for capitalization, amortization, and discounting; and has assisted the Soil Conservation Service in the preparation of basic yield tables of field crops and pastures and in overall economic procedures.

All woodland yields, values and costs were developed by the U. S. Forest Service. The extent and location of dedicated woodland plus other woodland areas not subject to land conversion were determined by the U. S. Forest Service.

Additional material and information required to make reliable estimates in this project study was obtained from the Mississippi State Extension Service, Experiment Station, SCD Commissioners and other individuals most familiar with the agricultural conditions and problems in the area.

METHOD OF COMPUTING AGRICULTURAL VALUES CREDITABLE TO PROJECT

Information and data presented in this report are intended to portray three different conditions with respect to land use, cropping

patterns, crop yields, etc. - (1) existing conditions, (2) future conditions without project, and (3) future conditions with project.

Agricultural benefits creditable to the project will be the difference between the future net return with project and future net return without project. Associated costs in future with project conditions should be deducted from gross benefits to arrive at net return to the project.

LIMITS OF APPLICATION OF ESTIMATES

The limits of project effectiveness established by the Corps of Engineers on the basis of engineering studies were accepted as the basis for compilation of agricultural data. All soils of such characteristics as to not require drainage have been eliminated from drainage evaluations. However, no attempt has been made by the Department of Agriculture to designate areas, within the limit of project effectiveness provided by the Corps, which, because of elevation might be drained without the project and hence not properly credited as benefiting from the project. Further engineering studies by the Corps may reveal the desirability of eliminating some acreages of that type from the computations contained herein. The Department of Agriculture does not have responsibility for that phase of the study.

DESCRIPTION OF PROJECT

The Yazoo Backwater Project consisting of 926,000 acres is located in the southern part of the Mississippi Delta and comprises that portion of Washington, Humphreys, Yazoo, Issaquena, Sharkey and Warren Counties below the 106.2 MSL elevation. The Yazoo and Sunflower Rivers and Steele Bayou run through the area in a southerly direction and will provide outlets for most of the group drainage facilities within the project. The Lower Auxiliary Channel bisects the area from a point south of Silver City to its confluence with the Sunflower River south of Holly Bluff. Interceptive drainage ditches along the levee portion of the Lower Auxiliary Channel will provide additional facilities for group drainage. The upper limits of project effectiveness generally follow the 106.2 MSL contour. The lower limits of project effectiveness generally follow the 87' contour.

The project involves the construction of 53 miles of levees along the west bank of the Yazoo River from the lower end of the present east bank of the Mississippi River levee to near Yazoo City and the construction of 45 miles of levees along the east bank of the Yazoo River in the vicinity of Satartia together with necessary pumping plants and flood gates to provide for intercepted drainage.

The installation of authorized and planned works of improvement divide the project into four sub-areas as follows:

Area 1, known as the Yazoo area, will be that land between the main Mississippi River levee and the east levee of the Lower Auxiliary

Channel and up to elevation 106.2 MSL.

There will be three B Zones within Area 1 as follows:

Zone B 1 will be that area that lies between the 87' and 97.8' MSL. Approximately 296,000 acres between the 87' and 90.6' MSL will receive protection.

Zone B 2 is that land which lies between the 97.8' and 106.2' MSL. Within Zone B 2 is an area of approximately 30,000 acres where benefits will be derived by the Yazoo Backwater Project and the Big Sunflower River Project. A separate study on this 30,000 acres has been made so that the Corps can properly evaluate the benefits between the two projects.

In Areas 2, 3, and 4 there will be no subdivisions within the B Zones as in Area 1.

Area 2, known as the Carter area, will be that land between the east levee of the Lower Auxiliary Channel and the west levee of the Yazoo River.

Area 3, known as Rocky Bayou, will be east of the Yazoo River and between Yazoo City and Satartia.

Area 4, known as the Satartia area, lies east of the Yazoo River and south of Satartia.

SOILS AND TOPOGRAPHY

Table 1 shows the existing land use by soil units for each area and zone in the project.

Soil Mapping Unit 1 - approximately 75% of entire project.

This soil was found in each of the four areas studied. It is a very slowly permeable, poorly drained soil on level to nearly level slopes. It occupies a lowland position between the natural levees of the major streams traversing the project. Natural surface drainage is very slow. This soil is very difficult to manage; when wet it is very plastic, and when dry is subject to severe cracking which is injurious to roots of certain plants. The inherent fertility of the soil is high; however, high yields of adapted crops is dependent upon excellent surface drainage and moderately dry years.

Soil Mapping Units 2, 6 and 8 - approximately 16% of entire project.

Soil Unit 2 is found only in Area 1; Soil Unit 8 is found in Areas 3 and 4 and Soil Unit 6 occurs in all areas. Each unit occupies an intermediate position between the natural levees and the backswamps. They are usually poorly drained and somewhat difficult to manage until adequate farm and group drainage facilities are completed. Maximum yields and early plantings of adapted crops are dependent upon good surface drainage.

Soil Mapping Units 4, 5 and 7 - approximately 6% of entire project.

These are the better drained sand loam and silt loam soils and are found along the natural levees of the larger streams and bayous. Soil Unit 7 is found in Areas 3 and 4 and occur as local alluvium adjacent to the Loess Bluffs. All are fairly well drained and well adapted to most crops grown in the project. Crop yields may be increased slightly with an adequate water disposal system. Supplementary irrigation will materially increase the yields of cotton and corn on these soils.

Soil Mapping Units 3, 11 and 14 - approximately 1.5% of project.

These units are of minor significance in the overall project evaluation but need to be recognized. Units 3 and 11 are excessively drained and occur only in Area 1 near old crevasses. There will be no response to drainage and very little response to irrigation on these soils. Soil Unit 14 is low, wet forested areas (swamp). It is anticipated that this soil unit will remain in woods although some may be drained with project.

LAND USE

At present approximately 43 percent of the entire project area is openland, 56 percent is woodland and 1 percent is urban and water area. Most of the woodland is found in Soil Mapping Unit 1.

A considerable amount of land clearing is going on in the project area at present and this trend is expected to continue. This has been brought about by prior works of improvement such as channel realignment and improvement, levees, the construction of reservoirs, etc. It is estimated that 113,658 acres of woodland will be cleared in the future without the project in the B and C zones. With the project in effect approximately 106,217 additional acres of woodland will be cleared and put into crops and pasture. Most of the land clearing is expected to occur in soil mapping units 1 and 6. These are the soils that will benefit most from additional and improved drainage facilities.

Approximately 35 percent of the woodland in the project area is dedicated to forest uses. The Delta National Forest comprises about a third of the dedicated forest acreage while the remainder belongs to hardwood lumber companies, hunting clubs, state parks, etc. Approximately two-thirds of the acreage is presently under a high level of management.

The non-dedicated woodland is in a generally poor condition due to poor cutting practices and past fire damage. In spite of these unfavorable factors, there is a fair stand of merchantable timber averaging about 4300 board feet per acre on 55 percent of the project area.

CROPPING PATTERNS

Present cropping patterns are the result of several factors and conditions. As a result of inadequate farm and group drainage, a higher

percentage of cotton and corn is being planted on soil groups 4, 5 and 7. Existing acreage controls on cotton and rice have limited the amount which would likely have been grown without controls. Under the conditions of acreage controls and price levels currently prevailing, acreages which landowners could have been expected to plant in cotton have been diverted to soybeans for beans. However under assumption of a relatively free economy with production and requirements in balance under competitive conditions as used in evaluation of future conditions, cropping patterns can be expected to change considerably. Rice, for example, is not expected to be of sufficient importance to be of significance in the evaluation of future conditions due to the expected future price-cost relationship for this crop in Mississippi. Consequently no acreage of rice is shown in Tables III and IV for this area. Flooding frequency, depth and duration have not had a material effect on the cropping pattern within Zone B.

Expected net returns per acre exert an influence on cropping patterns under all conditions, but have a more restricted influence under acreage control programs than in an economy which is relatively free from such controls. Present cropping patterns are those which have been found to exist currently under conditions of present acreage controls and price-cost relationships. Predicted future cropping patterns were influenced by a consideration of anticipated net returns, customs, conservation needs, the expressed intent of farmers living in the area and other similar factors.

Cotton, soybeans, corn, oats and pasture are the major crops grown in the area. The increase in cotton acreage and decrease in soybean acreage for future conditions is based upon the assumption of unrestricted acreage controls on all crops. No major changes in the cropping patterns are anticipated between future without and future with project conditions other than increases in each crop brought about by land conversions. The most significant increase is in pasture acreage. This is because of the large amount of land conversion anticipated in soil unit number 1 which is best suited for use as pasture.

YIELDS

Present field crop and pasture yields are estimates based upon existing conditions with an average level of management. Existing conditions reflect present drainage, irrigation and technology.

Future yields of all crops reflect the influence of improved drainage conditions, improved technology, supplementary irrigation and a correspondingly higher level of management.

The yields in all zones are for average flood-free years. The difference in yields between future conditions without and with the project represents the increases made possible through improved drainage.

Present forest inventories were determined to reflect current woodland values on an acre basis. Yields used in this report are the results of a weighted average of the levels of management on an acreage

basis which it is anticipated that landowners would apply. Deferred yields have been appropriately discounted. Board foot and cubic foot units of production of wood products per acre are not shown in Tables II and III due to complexity of computations. For simplicity the yield has been consolidated into a per acre value of production.

PRICES AND ASSOCIATED COSTS

Projected prices as outlined in Mississippi River & Tributaries Project Study General Memorandum Number 6 (revised) for Mississippi were used in the evaluation of field crops and livestock enterprises. These projections represent the long-term levels of prices which can reasonably be expected to prevail with production and requirements in balance under competitive conditions and under assumption of a relatively high employment level, a trend toward peace, continued population and economic growth, and a stable general price level.

Woodland production values are based on average 1955 prices for forest products at the mill yard or railroad siding. Nineteen fifty-five prices are used since they appear to be realistic price projections for future conditions. The production values shown are present annual equivalent values of deferred incomes at a discount rate of 5%. Allowance is made for different levels of prices obtainable reflecting quality of the forest crop at different levels of management.

CROP PRODUCTION COSTS

Average production costs for crop and livestock enterprises were developed from studies of large and small farms in the Mississippi Delta. The costs for each crop and livestock enterprise include all preharvest, harvest, overhead and management charges required to obtain yields used in the project analysis. Some production costs are expected to vary directly with yields. The cost of picking cotton by hand is an example of this type of cost. Some costs vary with yield, but have a fixed minimum charge, as is usually the case with machine harvest of cotton. In such cases a minimum fixed charge was assessed and the rest considered as varying directly with yield. Still other costs such as land preparation, as an average, are constant. All costs were treated as either fixed or variable in accordance with principles illustrated in the preceding examples. These costs are based on a projection of prices paid by farmers which are approximately 96 percent of the 1955 level of costs incurred by farmers.

Moisture deficiencies during the growing season have resulted in the use of supplemental irrigation of cotton to some extent on the better drained soils within the past few years. Supplemental irrigation of other crops has been of minor importance. It is anticipated that there will be a steady increase in supplemental irrigation on cotton and corn and to a lesser degree on other crops under future with or without project conditions.

Operation and maintenance of the supplemental irrigation system

was included as a preharvest cost. The initial cost, which was amortized over a 15 year period at 5 percent, was included in overhead. Costs were based on 20 percent sprinkler and 80 percent surface for row crops and 100 percent surface for pasture.

Production costs for forest products are composed of the cost of conversion of standing timber to logs and pulpwood delivered to mill yard or railroad siding (harvest cost) plus the cultural and management cost of producing the crop (preharvest cost). The conversion cost per acre varies by estimated annual yield levels. The cultural and management costs are fixed annual charges weighted by percentage of acres at different management levels. The conversion costs shown are annual equivalent costs per acre discounted at 5 percent in the same manner as production values for deferred operation. Basic costs are those prevailing in 1955 as determined locally for project conditions and are estimated to be a reasonable level for projection to future conditions.

NET CROP PRODUCTION RETURNS

The analyses by soil units and by major crop and livestock enterprises indicate that the gross value of production exceeds production costs for each enterprise within each soil unit. Positive net returns to land result. Direct comparison of these net returns to land between enterprises to determine feasibility of each is not valid. Associated costs, such as pasture installation and maintenance, directly chargeable to a specific enterprise affects its relative net value. Returns to management will also be considered by the landowner in making a choice of enterprises. An increase in the net return to land with project, as compared to without project conditions, is indicated for all enterprises except the woodland enterprises. Net return to woodland, per acre, is not expected to be affected directly, although such returns will be affected indirectly through the anticipated clearing of certain acreages and conversion to a more intensive use due to the influence of project works of improvement.

LAND USE CONVERSIONS AND COSTS

Table VI shows the land use conversions that are expected to occur in the future as a result of project works of improvement and includes all cost of putting the new land into crops or pasture with the exception of farm and group drainage costs. Cost of clearing, land smoothing and pasture establishment are prevailing rates within the project and are estimated to be reasonable for projections to future conditions.

Rather large amounts of woodland are expected to be converted to cropland in the future with or without the project. A slightly smaller acreage is expected to be converted from woodland to pasture. The net return for all row crops and pasture was much greater than the net return from woodland. This increase in net return will tend to accelerate the conversion of woodland to other crops in both zones within the project.

All capital costs of conversions have been amortized at 5 percent for a period of 50 years. Annual maintenance includes cost of maintaining additional pasture established. This item is not included in cost of production.

FARM DRAINAGE SYSTEMS AND COSTS

Table VII contains estimates of amounts and cost of farm drainage systems by soil mapping units that will be constructed after satisfactory group drainage systems and adequate major outlets are developed. These estimates anticipate that 78 percent of the gross openland will be drained and used for crop and pasture production with the project in effect. Approximately 12 percent will remain as wet land due to the lack of farmer participation. The remainder will be utilized in roads, farmsteads, etc. It is estimated that approximately 45 percent of the present openland is adequately drained.

Cost includes the installation (construction, engineering and contingency) required for farm drainage systems for the satisfactory removal of surface water to obtain the best crop production. Requirements vary by soil mapping units and land use. Drainage requirements for rotated pasture land were the same as cropland on similar soil units. Costs include all ditching and appurtenant structural needs for systems to serve an average of one square mile. Estimates are based on standard design data for conditions involved.

Farm drainage systems capital cost have been amortized for a useful life period of ten years and 15 years at 5 percent. The life expectancy of farm drainage systems is influenced by soil units, cropping patterns, which are largely determined by soil units, and the stability of agriculture in the study area. It was determined that the life expectancy ranged from 10 to 15 years with a weighted average for all soil units of approximately 12 years. Farm drainage life expectancy in Area 1, Zone B 2 is 15 years; all other areas and zones 10 years. Maintenance cost, varying with soil mapping units, and land use have been added to the amortized annual equivalent of installation cost to derive the annual cost of farm drainage systems. Farm drainage systems and cost were determined for the B zones only. Present costs of farm drainage systems are expected to prevail under future with project conditions.

GROUP DRAINAGE SYSTEMS AND COSTS

Group drainage systems and cost was established on a project wide basis. Any group drainage ditches running through Zone C were for the purpose of tying in Zone B with major drainage outlets proposed in the project.

Approximately 489 miles of group drainage ditches are now in place and will require clean-out and maintenance only to furnish adequate ditches for farm drainage systems now existing and anticipated without the proposed project works of improvement.

Channel enlargement on approximately 70 miles of ditches and the construction of 87 miles of new ditches will be required to give adequate group facilities for farm drainage systems anticipated with the proposed works of improvement in place.

Table VIII itemizes the cost required to install and maintain intermediate group drainage facilities and appurtenant structures. Installation costs have been amortized for a useful life period of 20 years at $3\frac{1}{2}$ percent. This useful life is based on known life of comparable ditches in this immediate vicinity. Maintenance cost have been added to this amount to derive the total annual cost of group drainage systems. Present group drainage systems are expected to prevail under future with project conditions.

BENEFITS AND ASSOCIATED COSTS

Net enhancement benefits which will accrue from the project works of improvement will be improvements in farm and group drainage systems, and improved management and better use of technological advancement as a result of improved drainage.

Annual equivalent values of income on woodland has been determined. Due consideration has been given present annual values and deferred income resulting in better management without project. No increase in forest income is anticipated due to project works of improvement. Likewise, no estimate is made of losses in yield or income that might result from changed forest growing conditions or increased logging costs that might be caused by the project.

Table IX summarizes -- (1) net annual returns and benefits from Table V; (2) annual costs of making land conversions from Table VI; (3) annual costs in installing and maintaining farm and group drainage systems, Tables VII and VIII.

Gross project benefits have been discounted to take into account an anticipated time lag in accrual of the last increment of increasing benefits after project installation. Time lags used were 15 years for Areas 3 and 4, 25 years for Area 2, and 30 years for Area 1. A 50 year period of analysis was used. A projected private interest rate of 5 percent was used in arriving at discount factors.

Annual installation and maintenance costs of farm drainage systems have been discounted to take into account the following considerations: (1) interest rate, 5%; (2) time lag, 10 years for Areas 3 and 4, 20 years for Area 2 and 25 years for Area 1; and (3) period of analysis, 50 years.

Annual installation and maintenance cost of conversions have been discounted to take into account the following considerations: (1) interest rate, 5%; (2) time lag, 10 years for Areas 3 and 4, 20 years for Area 2 and 25 years for Area 1; and (3) period of analysis, 50 years.

Annual installation and maintenance costs of group drainage systems

have been discounted to take into account the following considerations: (1) interest rate, $3\frac{1}{2}\%$; (2) time lag 5 years for Areas 3 and 4, 10 years Area 2 and 15 years Area 1; and, (3) period of analysis, 50 years.

The lags described are based upon local experience and present trends in this and other similar areas under conditions which parallel those being evaluated. Instantaneous installation of the project is assumed for discount purposes and is considered to be year zero as a reference point for all associated measure costs and benefits contingent upon project installation. Progress towards realization of full benefits from proposed project works of improvement is expected to be incremental and as follows:

1. Complete installation of group drainage facilities is expected to take 5 years for Areas 3 and 4, 10 years for Area 2 and 15 years for Area 1 from the last year of project installation.
2. Land conversions and the complete installation of farm drainage systems is expected to take 5 years in Areas 3 and 4 and 10 years in Areas 1 and 2 after installation of group drainage systems or 10 years after project installation for Areas 3 and 4, 20 years for Area 2 and 25 years for Area 1.
3. Realization of maximum estimated yields and full benefits is expected to require a 5 year conservation build-up period after land conversions are made and farm drainage systems installed or a total of 15 years after project installation for Areas 3 and 4, 25 years for Area 2 and 30 years for Area 1.

A proportionate part of all associated costs and of project benefits is assumed to accrue the first year after instantaneous project installation, to increase uniformly for the period of lag, and to level off at the end of the period of lag and continue at a constant rate to the end of the project life of 50 years.

SUMMARY

The installation of authorized and planned works of improvement will provide full protection on 569,000 acres of land between the 106.2 and 90.6 MSL elevations, and partial protection on approximately 296,000 acres of land between the 90.6 and 87.0 MSL elevations. In addition there will be adequate outlet for farm and group drainage facilities on approximately 865,000 acres of land within the project.

It is anticipated that as a result of works of improvement the areas subject to flooding will be reduced materially and that agricultural development within Areas 3 and 4 will proceed rapidly and in Areas 1 and 2 at a lesser rate due to present conditions within the project.

As a result of agricultural development within the project due to increased drainage facilities there will be an annual gross benefit of \$2,079,345; annual associated cost of \$1,243,241 with a annual net benefit to project of \$836,104.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Back Water
 State: Mississippi

TABLE I

Existing Land Use by Soil Mapping Units

Area 1 - Zone B 1 - Drainage and Flood Control Calculations

Soil Mapping Unit	Open (Acres)	Wooded (Acres)	Water (Acres)	Urban (Acres)	Total (Acres)
1	37,671	280,378	0	0	318,049
2	16,082	3,102	0	0	19,184
3	130	0	0	0	130
4	752	220	0	0	972
5	7,867	130	1,356	290	9,693
6	10,455	2,738	0	0	13,193
14	0	4,539	240	0	4,779
Subtotal-all soils	72,957	291,157	1,596	290	366,000

Zone B 2 - Drainage and Flood Control Calculations

1	150,976	50,846	1,350	0	203,172
2	36,741	3,736	0	0	40,477
3	1,252	288	0	0	1,540
4	8,830	424	50	0	9,304
5	16,769	299	520	0	17,588
6	40,859	7,905	1,850	0	50,614
11	274	0	0	0	274
14	0	2,791	660	0	3,451
Subtotal-all soils	255,701	66,239	4,430	0	326,420

Zone B 2 (Overlap) - Drainage and Flood Control Calculations

1	14,350	15,230	0	0	29,580
2	70	270	0	0	340
6	510	120	0	0	630
14	0	1,030	0	0	1,030
Subtotal-all soils	14,930	16,650	0	0	31,580

Zone C - Zone of No Project Benefits

Soil Mapping Unit	Open (Acres)	Wooded (Acres)	Water (Acres)	Urban (Acres)	Total (Acres)
1	120	47,688	0	0	47,808
2	0	260	0	0	260
6	50	0	0	0	50
14	0	2,285	10	0	2,295
Water	0	0	3,587	0	3,587
Subtotal-all soils	170	50,233	3,597	0	54,000
Total - Area I	343,758	424,329	9,623	290	778,000

Area II - Zone B - Drainage and Flood Control Calculations

1	13,557	59,700	0	0	73,257
4	7,952	463	0	0	8,415
6	13,577	1,655	0	0	15,232
14	0	454	16	0	470
Water	0	0	626	0	626
Subtotal-all soils	35,086	62,272	642	0	98,000

Zone C - Zone of No Project Benefits

1	0	200	0	0	200
Water	0	0	800	0	800
Subtotal-all soils	0	200	800	0	1,000
Total - Area II	35,086	62,472	1,442	0	99,000

Area III - Zone B - Drainage and Flood Control Calculations

1	640	5,783	0	0	6,423
4	4,339	230	0	0	4,569
6	1,622	1,092	0	0	2,714
7	1,959	90	0	0	2,049
8	145	100	0	0	245
Subtotal-all soils	8,705	7,295	0	0	16,000

Zone C - Drainage and Flood Control Calculations

Soil Mapping Unit	Open (Acres)	Wooded (Acres)	Water (Acres)	Urban (Acres)	Total (Acres)
1	0	1,000	0	0	1,000
Subtotal-all soils	0	1,000	0	0	1,000
Total-Area III	8,705	8,295	0	0	17,000

Area IV - Zone B - Drainage and Flood Control Calculations

1	910	15,662	0	0	16,572
4	977	0	0	0	977
6	2,170	640	0	0	2,810
7	3,925	250	0	0	4,175
8	1,238	577	0	0	1,815
14	0	288	0	0	288
Water	0	0	363	0	363
Subtotal-all soils	9,220	17,417	363	0	27,000

Zone C - Zone of No Project Benefits

1	280	4,375	0	0	4,655
14	0	345	0	0	345
Subtotal-all soils	280	4,720	0	0	5,000
Total - Area IV	9,500	22,137	363	0	32,000

Grand Total - All Areas	397,049	517,233	11,428	290	926,000
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1. Introduction

The purpose of this study is to investigate the effects of various factors on the growth of plants. The factors being studied are light, water, and soil. The results of the study will be presented in the following sections.

The first section will discuss the importance of light for plant growth. Light is essential for photosynthesis, which is the process by which plants convert light energy into chemical energy. Without light, plants would not be able to produce the food they need to grow.

The second section will discuss the importance of water for plant growth. Water is essential for many plant processes, including photosynthesis and the transport of nutrients. Without water, plants would die.

The third section will discuss the importance of soil for plant growth. Soil provides plants with the nutrients they need to grow. It also provides a medium for plant roots to anchor themselves.

2. Materials and Methods

The materials used in this study were three types of plants: corn, beans, and peas. The methods used were as follows:

1. The plants were grown in three different environments: full sun, partial sun, and full shade.
2. The plants were watered at different intervals: daily, every two days, and every three days.
3. The plants were grown in three different types of soil: sand, loam, and clay.

The results of the study will be presented in the following sections.

3. Results and Discussion

The results of the study are as follows:

1. Corn plants grown in full sun grew taller and produced more ears than those grown in partial sun or full shade.
2. Beans and peas grown in full sun grew taller and produced more pods than those grown in partial sun or full shade.
3. Plants grown in loam soil grew taller and produced more pods than those grown in sand or clay soil.
4. Plants watered daily grew taller and produced more pods than those watered every two days or every three days.

The discussion of the results is as follows:

The results show that light, water, and soil are all important factors for plant growth. Plants grown in full sun, watered daily, and in loam soil grew the tallest and produced the most pods. This suggests that these conditions are the best for growing corn, beans, and peas.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 1, Zone B 1
 State: Mississippi

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION

(1) :	(2)	:	(3)	:	(4)	(5)	(6)
Soil:	Land use and crop	:	Acres	:	Production		
Unit:	Distribution	:		:	Unit	Per Acre:	Total
:	:	:	2/	:	:	3/	:
All :	Open Land	:	72,957	:	:	:	:
:	Crops	:	65,662	:	:	:	:
:	Cotton	:	12,740	:	Lbs.lint	468	5,959,537
:	Corn	:	6,052	:	bu.	39	235,098
:	Soybeans	:	17,309	:	bu.	20	345,043
:	Soybeans (Fol.Oats)	:	(4,415)	:	bu.	11	49,661
:	Oats (Grain)	:	10,734	:	bu.	34	361,632
:	Oats (Grazed)	:	(501)	:	Lbs.beef	137	68,386
:	Rice	:	1,055	:	Cwt.	28	29,540
:	Idle	:	1,459	:	:	:	:
:	Pasture	:	16,313	:	lbs.beef	226	3,694,668
:	Other 1/	:	7,295	:	:	:	:
:	Forest Land	:	171,782	:	:	:	:
:	:	:	:	:	:	:	:
:	Total 4/	:	244,739	:	:	:	:
:	:	:	:	:	:	:	:

- 1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Parenthetical amounts are duplicated acreages.
 3/ Calculated from columns 3 and 6; rounded to nearest unit.
 4/ Total does not include land remaining in woods, urban, water of 121,261 acres.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 1, Zone B 1
State: Mississippi

SUMMARY - TABLE III B
(Zone for Drainage and Flood Control Calculations)
COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil	Land use and crop	Acres	Unit	Production	Total	Per Unit	Value of production	Per Acre	Cost of production	Net
Unit	distribution			Per Acre	Total	Dollars	Dollars	Dollars	Total	Return
		2/		3/		Dollars	Dollars	Dollars	Dollars	Dollars
All	Open Land							5/		
	Crops	139,530:								
	Cotton	125,577:				4/				
	Corn	24,709:lbs.	lint:	552	13,641,685	0.318286	4,341,957.34	143.49	3,515,487.55	796,469.79
	Soybeans	13,165:	bu.	41	538,878:	1.45	781,373.10	39.54	520,587.13	260,785.97
	Soybeans (Pol.	20,532:	bu.	24	491,901:	2.35	1,155,967.35	31.78	652,478.51	503,488.84
	Oats	(3,794):	bu.	15	57,315:	2.35	134,690.25	25.03	94,981.73	39,708.52
	Oats (Grain)	12,010:	bu.	36	433,891:	0.95	412,196.45	25.63	307,767.10	104,429.35
	Oats (Grazed)	(414):	lbs.beef:	101	41,904:	0.1805	7,563.67	8.75	3,622.64	3,941.03
	Idle	2,791:								
	Pasture	52,370:	lbs.beef:	268	14,060,505:	0.1805	2,537,921.16	29.17	1,527,874.51	1,010,046.65
	Other 1/	13,953:								
	Forest Land	53,685:				9.39	504,102.15	5.41	290,435.85	213,666.30
		7/:								
	Total	193,215:					9,875,771.47		6,943,235.02	2,932,536.45

1/ Farmsteads, farm roads, waste and non-agricultural.
2/ Parenthetical amounts are duplicated acreages.
3/ Calculated from columns 3 and 6, rounded to nearest unit.
4/ Composite price for lint and seed per pound of lint cotton.
5/ Calculated from columns 3 and 10; rounded to nearest cent.

6/ Composite value of veal calves and herd culls (beef cattle).
7/ Total does not include 172,785 acres remaining in woods, water and urban.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

SUMMARY - TABLE IV B (Zone for Drainage and Flood Control Calculations)

COMPARISON OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS
AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 1, Zone B 1
State: Mississippi

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil: Land use and crop	Acres			Production	Value	of production	Cost	of production	Net	Return
Unit: distribution	Unit	Per Acre:	Total	Per Unit	Dollars	Dollars	Per Acre:	Total	Dollars	Dollars
All		2/		2/			5/			
Open Land	193,215:									
Crops	173,894:									
Cotton	31,122: lbs. lint:		18,974,651:	0.318286:	6,039,365.77:	156.20:	45.48:	4,861,191.61:	1,178,174.16:	400,617.17:
Corn	16,953: bu.		808,044:	1.45:	1,171,663.80:	45.48:	34.83:	771,046.65:	873,662.73:	
Soybeans	29,231: bu.		805,032:	2.35:	1,891,825.20:	28.32:	27.40:	1,018,162.47:		
Soybeans (Fol. Oats)	(7,069): bu.		119,324:	2.35:	280,203.06:	10.42:	33.39:	200,184.26:		80,018.80:
Oats (Grain)	18,271: bu.		732,628:	0.95:	695,996.60:	10.42:	33.39:	500,694.73:	195,301.87:	5,380.85:
Oats (Grazed)	(503): lbs. beef:		58,862:	0.18056/:	10,624.59:			5,243.74:		
Idle	3,866:									
Pasture	74,451: lbs. beef:		23,341,759:	0.1805:	4,213,187.50:			2,486,220.82:	1,726,966.68:	
Other 1/	19,321:									
Total	193,215:				14,302,866.52:			9,842,747.26:	4,460,122.26:	

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6, rounded to nearest unit.

4/ Composite price for lint and seed per pound of lint cotton.

5/ Calculated from columns 3 and 10; rounded to nearest cent.

6/ Composite value of veal calves and herd culls (beef cattle).

7/ Total does not include 172,785 acres remaining in woods, water and urban.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 1, Zone B 2
 State: Mississippi

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION

(1)	(2)	(3)	(4)	(5)	(6)
Soil	Land use and crop	Acres	Production :		
Unit	distribution		Unit	Per Acre	Total
		<u>2/</u>		<u>3/</u>	
All	Open Land	255,701	.		
	Crops	230,131	.		
	Cotton	42,997	Lbs. lint	481	20,188,651
	Corn	9,491	bu.	35	336,012
	Soybeans	92,133	bu.	20	1,807,602
	Soybeans (Fol.Oats)	(14,414)	bu.	10	140,190
	Oats (Grain)	43,976	bu.	31	1,354,890
	Oats (Grazed)	(1,607)	Lbs.beef	93	148,846
	Rice	12,021	Cwt.	27	324,812
	Idle	5,114			
	Pasture	25,359	Lbs.beef	217	5,514,068
	Other <u>1/</u>	25,570			
	Forest Land	61,119			
	Total <u>4/</u>	316,820			

- 1/ Farmsteads, farm roads, waste and non-agricultural.
2/ Parenthetical amounts are duplicated acreages.
3/ Calculated from columns 3 and 6; rounded to nearest unit.
4/ Total does not include 5,170 acres in woods and 4,430 acres in water.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 1, Zone B 2
 State: Mississippi

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil	Land use and crop	Acres	Unit	Production	Total	Per Unit	Value	Of Production	Cost	Net
Unit	distribution			Per Acre		Dollars	Dollars	Per Acre	Total	Return
		2/		3/		Dollars	Dollars	Dollars	Dollars	Dollars
All	Open Land									
	Crops	:276,228:								
	Cotton	:248,606:								
	Corn	:79,870:lbs.lint:		575	:45,938,296:	0.3182	14,621,516.48	147.61	:11,789,930.38:	:2,831,586.10
	Soybeans	:9,087: bu.		45	:405,947:	1.45	588,623.15	41.52	:377,254.24:	:211,368.91
	Soybeans (Fol.	:56,427: bu.		25	:1,417,249:	2.35	3,330,535.15	32.50	:1,883,955.82:	:1,496,579.33
	Oats (Grain)	:10,743: bu.		11	:119,389:	2.35	280,561.80	21.45	:230,560.62:	:50,001.18
	Oats (Grazed)	:65,975: bu.		33	:2,201,977:	0.95	2,091,878.15	25.59	:1,576,039.56:	:515,838.59
	Idle	: (915) lbs.beef:		108	: 99,264:	0.1805	17,917.14	9.51	: 8,703.81:	: 9,213.33
	Pasture	:5,525:								
	Other 1/	:31,722:lbs.beef:		277	:8,732,303:	0.1805	1,585,205.68	29.84	:945,936.52:	:639,269.16
	Forest Land	:27,622:								
		:14,423:				8.99	130,292.07	5.74	:83,189.82:	:47,102.25
	Total									
		7/								
		:290,721:					:22,646,529.62:		:16,845,570.77:	:5,800,958.85

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Composite price for lint and seed per pound of lint cotton.

5/ Calculated from columns 3 and 10; rounded to nearest cent.

6/ Composite value of veal calves and herd culls (beef cattle).

7/ Total does not include 35,699 acres land remaining in woods and water area.

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 1, Zone B 2
 State: Mississippi

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil:	Land use and crop:	Acres:	Unit:	Production	Total	Per Unit:	Value of production	Per Acre:	Cost of production	Net
Unit:	distribution	:	:	Per Acre:	Total	Dollars	Dollars	Dollars	Total	Return
:	:	:	:	:	:	:	:	:	:	:
All	Open Land	2/	:	3/	:	:	:	5/	:	:
:	Crops	:290,721:	:	:	:	:	:	:	:	:
:	Cotton	:261,649:	:	:	:	4/:	:	:	:	:
:	Corn	:84,430:lbs.lint:	:	639	:53,972,402:	0.318286:	17,178,659.93:	160.96:	13,589,367.20:	3,588,792.73
:	Soybeans	:8,507:bu.	:	51	:414,461:	1.45	:600,968.45:	47.30:	381,101.49:	219,866.96
:	Soybeans (Tot.)	:50,374:bu.	:	29	:1,453,184:	2.35	:3,414,982.40:	35.66:	1,796,554.78:	1,618,427.62
:	Oats (Grain)	:8,897:bu.	:	16	:139,905:	2.35	:328,776.75:	27.34:	243,275.04:	85,501.71
:	Oats (Grazed)	:59,138:bu.	:	38	:2,221,489:	0.95	:2,110,414.55:	25.70:	1,519,854.22:	590,560.33
:	Idle	:903:lbs.beef:	:	120	:108,674:	0.1805	:19,615.65:	10.78:	9,736.90:	9,878.76
:	Pasture	:5,815:	:	:	:	:	:	:	:	:
:	Other 1/	:53,835:lbs.beef:	:	314	:16,896,150:	0.1805	:3,049,450.57:	33.41:	1,798,857.27:	1,250,593.30
:	Total	:29,072:	:	:	:	:	:	:	:	:
:		1/	:	:	:	:	:	:	:	:
:		:290,721:	:	:	:	:	:26,702,868.30:	:	:19,339,246.90:	7,363,621.40

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Parenthetical amounts are duplicated acreages.
 3/ Calculated from columns 3 and 6; rounded to nearest unit.
 4/ Composite price for lint and seed per pound of lint cotton.
 5/ Calculated from columns 3 and 10; rounded to nearest cent.
 6/ Composite value of veal calves and herd culls (beef cattle).
 7/ Does not include 35,699 acres remaining in woods and water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 1, Zone B 2 overlap
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION

(1)	(2)	(3)	(4)	(5)	(6)
Soil	Land use and crop	Acres	Production		
Unit	distribution		Unit	Per Acre	Total
All	Open Land	2/		3/	
	Crops	14,930			
	Cotton	13,437			
	Corn	1,505	Lbs. Lint	352	514,526
	Soybeans	577	bu.	24	13,741
	Soybeans (Fol. Oats)	4,627	bu.	17	79,770
	Oats (Grain)	(924)	bu.	8	7,643
	Oats (Grazed)	2,596	bu.	27	68,928
	Rice	(8)	Lbs. beef	86	684
	Idle	763	Cwt.	28	21,364
	Pasture	298			
	Other 1/	3,071	Lbs. beef	208	637,726
	Forest Land	1,493			
		15,900			
	Total 4/	30,830			

- 1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Parenthetical amounts are duplicated acreages.
 3/ Calculated from columns 3 and 6; rounded to nearest unit.
 4/ Total does not include 750 acres remaining in woods and water.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

SUMMARY - TABLE III B

(Zone For Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 1, Zone B 2, Overlap
State: Mississippi

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil	Land use and crop	Acres	Unit	Production	Total	Per Unit	Value of production	Per Acre	Cost of production	Net
Unit	distribution			Per Acre	Total	Dollars	Dollars	Dollars	Total	Return
		2/		3/		Dollars	Dollars	Dollars	Dollars	Dollars
All	Open Land							5/		
	Crops	20,821:								
	Cotton	18,739:								
	Corn	2,906:lbs.lint:	442		1,283,607:	0.318286:	408,554.14	122.84	356,970.91	51,583.23
	Soybeans	1,062: bu.	32		34,206:	1.45	49,598.70	34.90	37,059.10	12,539.60
	Soybeans (Pol. Oats)	3,649: bu.	21		77,981:	2.35	183,255.35	30.12	109,892.52	73,362.83
	Oats (Grain)	(792): bu.	12		9,798:	2.35	23,025.30	22.57	17,877.60	5,147.70
	Oats (Grazed)	4,290: bu.	31		134,350:	0.95	127,632.50	22.62	97,028.20	30,604.30
	Idle	(9):lbs.beef:	105		949:	0.1805	171.29	9.18	82.65	98.64
	Pasture	416:								
	Other 1/	6,416:lbs.beef:	268		1,721,828:	0.1805	310,789.95	29.17	187,141.84	123,648.11
	Forest Land	2,082:								
		4,196:				8.99	37,722.04	5.74	24,085.04	13,637.00
		7/:								
	Total	25,017:					1,140,749.27:		830,137.86:	310,611.41

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Composite price for lint and seed per pound of lint cotton.

5/ Calculated from columns 3 and 10; rounded to nearest cent.

6/ Composite value of veal calves and herd culls (beef cattle).

7/ Total does not include 6,563 acres remaining in woods and water.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

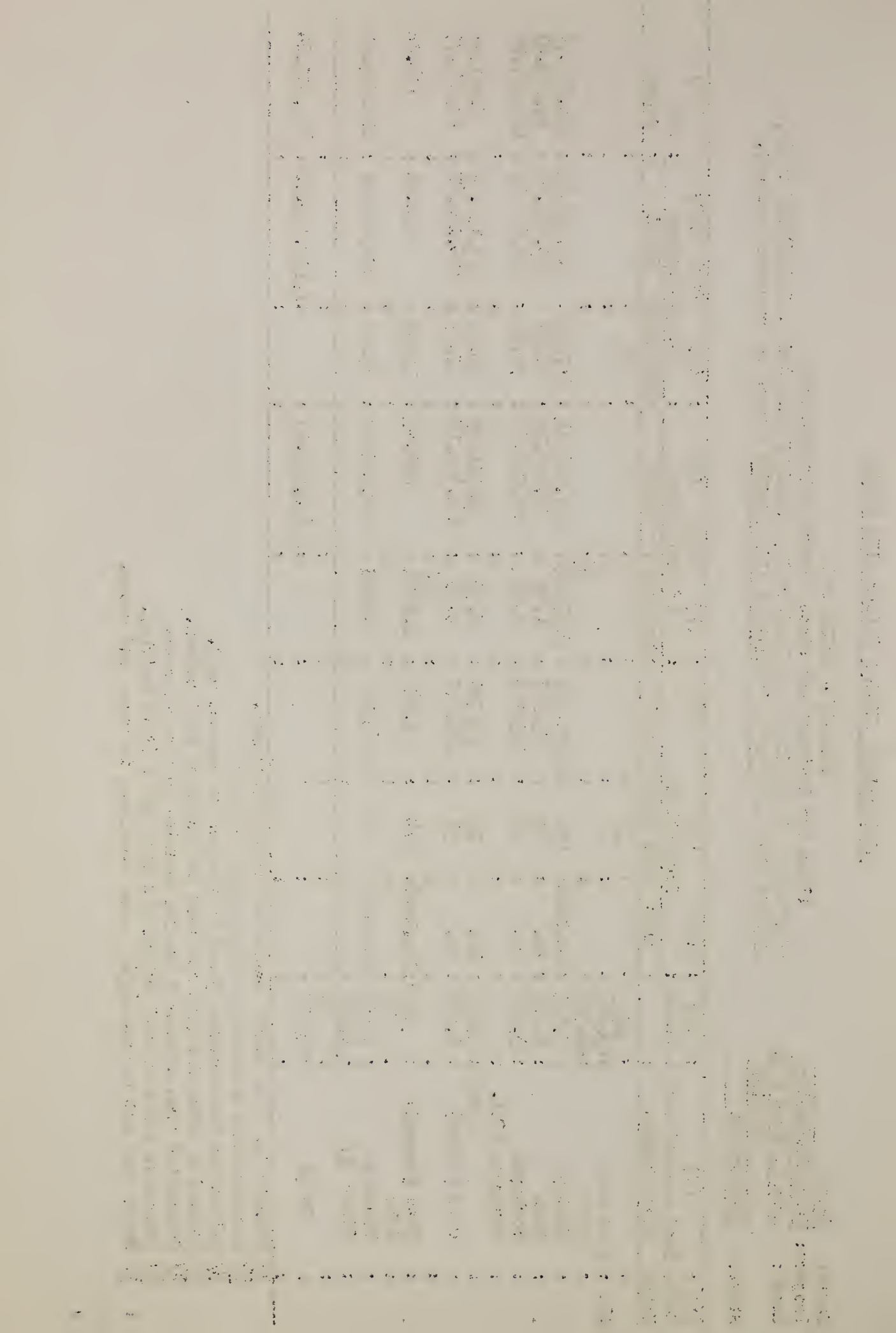
Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 1, Zone B 2, overlap
 State: Mississippi

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil:	Land use and crop	Acres	Unit	Production	Total	Per Unit	Value of production	Per Acre	Cost of production	Net
Unit:	distribution			Per Acre			Total	Total	Total	Return
All	Open Land	25,017		2				5		
	Crops	22,515								
	Cotton	3,533	lbs. lint	552	1,951,978	0.318236	621,000.81	147.06	519,557.05	101,443.76
	Corn	1,204	bu.	41	49,447	1.45	71,698.15	42.24	50,862.34	20,835.81
	Soybeans	3,943	bu.	26	103,493	2.35	243,208.55	34.01	134,091.29	109,117.26
	Soybeans (Fol. Oats)	(899)	bu.	15	13,707	2.35	32,211.45	26.92	24,199.47	8,011.98
	Oats (Grain)	4,529	bu.	37	168,877	0.95	150,433.15	27.57	116,150.42	44,282.73
	Oats (Grazed)	(11)	lbs. beef	114	1,249	0.1805	225.45	10.05	110.58	114.86
	Idle	500								
	Pasture	8,806	lbs. beef	314	2,765,957	0.1805	499,255.24	33.43	294,452.01	204,803.23
	Other 1/	2,502								
	Total	25,017					1,628,032.80		1,139,423.16	488,609.64

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Calculated from columns 3 and 10; rounded to nearest cent.
- 6/ Composite value of veal calves and herd culls (beef cattle).
- 7/ Total does not include 6,563 acres remaining in woods and water.



MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 1
 State: Mississippi

SUMMARY - TABLE II C
 (Zone of No Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

(1) :	(2)	:	(3)	:	(4)	(5)	(6)
Soil :	Land use and crop	:	Acres	:	Production		
Unit :	distribution	:		:	Unit	Per Acre:	Total
:		:	<u>2/</u>	:		<u>3/</u>	:
All :	Open Land	:	170	:			:
:	Crops	:	153	:			:
:	Cotton	:	20	:	Lbs.lint	324	:
:	Corn	:	8	:	bu.	23	:
:	Soybeans	:	47	:	bu.	17	:
:	Soybeans (Fol.Oats)	:	(9)	:	bu.	8	:
:	Oats (Grain)	:	24	:	bu.	26	:
:	Oats (Grazed)	:	-	:			:
:	Idle	:	3	:			:
:	Pasture	:	51	:	lbs.beef	207	:
:	Other <u>1/</u>	:	17	:			:
:	Woodland	:	3,071	:			:
:		:		:			:
:	Total <u>4/</u>	:	3,241	:			:
:		:		:			:

- 1/ Farmsteads, farm roads, waste and non-agricultural.
2/ Parenthetical amounts are duplicated acreages.
3/ Calculated from columns 3 and 6; rounded to the nearest unit.
4/ Total does not include 50,759 acres of land that will remain in woods and water area.

UNITED STATES DEPARTMENT OF AGRICULTURE

Bureau of Plant Industry
 Washington, D. C.
 1917

PLANT INDUSTRY

BUREAU OF PLANT INDUSTRY, UNITED STATES DEPARTMENT OF AGRICULTURE

Name of Plant		Common Name		Botanical Name		Origin		Uses	
Apple		Malus domestica		Rosaceae		China		Fruit	
Pear		Pyrus communis		Rosaceae		China		Fruit	
Quince		Cydonia oblonga		Rosaceae		China		Fruit	
Loquat		Eriobotrya japonica		Rosaceae		China		Fruit	
Japanese Quince		Chaenactis diaphana		Rosaceae		Japan		Fruit	
Elderberry		Sambucus racemosa		Sambucaceae		Europe		Fruit	
Raspberry		Rubus idaeus		Rosaceae		Europe		Fruit	
Blackberry		Rubus fruticosus		Rosaceae		Europe		Fruit	
Strawberry		Fragaria vesca		Rosaceae		Europe		Fruit	
Huckleberry		Vaccinium corymbosum		Ericaceae		North America		Fruit	
Blueberry		Vaccinium myrtillus		Ericaceae		Europe		Fruit	
Currant		Ribes nigrum		Grossulariaceae		Europe		Fruit	
Gooseberry		Ribes uva-ursi		Grossulariaceae		Europe		Fruit	
Elder		Sambucus racemosa		Sambucaceae		Europe		Fruit	
Spiraea		Spiraea alba		Rosaceae		Europe		Fruit	
Dogwood		Cornus florida		Cornaceae		North America		Fruit	
Hawthorn		Crataegus oxyacantha		Rosaceae		Europe		Fruit	
Yew		Taxus canadensis		Taxaceae		North America		Fruit	
Juniper		Juniperus communis		Cupressaceae		Europe		Fruit	
Cedar		Cedrus libani		Cupressaceae		Lebanon		Fruit	
Pine		Pinus strobus		Pinaceae		North America		Fruit	
Spruce		Picea canadensis		Pinaceae		North America		Fruit	
Fir		Abies balsamea		Pinaceae		Europe		Fruit	
Larch		Larix laricina		Pinaceae		North America		Fruit	
Douglas Fir		Pseudotsuga canadensis		Pinaceae		North America		Fruit	
Sitka Spruce		Picea sitchensis		Pinaceae		North America		Fruit	
White Pine		Pinus strobus		Pinaceae		North America		Fruit	
Red Pine		Pinus resinosa		Pinaceae		North America		Fruit	
Jack Pine		Pinus banksiana		Pinaceae		North America		Fruit	
Balsam Pine		Pinus resinosa		Pinaceae		North America		Fruit	
Loblolly Pine		Pinus taeda		Pinaceae		North America		Fruit	
Slash Pine		Pinus caroliniana		Pinaceae		North America		Fruit	
Longleaf Pine		Pinus palustris		Pinaceae		North America		Fruit	
Shortleaf Pine		Pinus echinata		Pinaceae		North America		Fruit	
Pitch Pine		Pinus rigida		Pinaceae		North America		Fruit	
White Pine		Pinus strobus		Pinaceae		North America		Fruit	
Red Pine		Pinus resinosa		Pinaceae		North America		Fruit	
Jack Pine		Pinus banksiana		Pinaceae		North America		Fruit	
Balsam Pine		Pinus resinosa		Pinaceae		North America		Fruit	
Loblolly Pine		Pinus taeda		Pinaceae		North America		Fruit	
Slash Pine		Pinus caroliniana		Pinaceae		North America		Fruit	
Longleaf Pine		Pinus palustris		Pinaceae		North America		Fruit	
Shortleaf Pine		Pinus echinata		Pinaceae		North America		Fruit	
Pitch Pine		Pinus rigida		Pinaceae		North America		Fruit	

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MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo

Project: Yazoo Backwater

Reach: Area 1

State: Mississippi

SUMMARY - TABLE III C

(Zone of No Project Benefit) 2/

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS, AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

(1):	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil:	Land use and crop	Acres		Production		of	Value	of	Cost	Net
Unit:	distribution			Per Acre:	Total	Per Unit:	Total	Per Acre:	Total	Return
			Unit	Per Acre:	Total	Dollars	Dollars	Dollars	Dollars	Dollars
All	Open Land	3/		4/				6/		
	Crops	3,241								
	Cotton	2,917				5/				
	Corn	324	lbs.	421	136,404	0.318286	43,115.48	118.84	38,504.16	4,911.32
	Soybeans	240	bu.	30	7,200	1.45	10,440.00	33.67	8,080.80	2,359.20
	Soybeans (Fol.	463	bu.	21	9,723	2.35	22,849.05	29.88	13,834.44	9,014.61
	Oats (Grain)	(62)	bu.	12	744	2.35	1,748.40	22.24	1,378.88	369.52
	Oats (Grazed)	263	bu.	31	8,153	0.95	7,745.35	22.42	5,896.46	1,848.89
	Idle	-								
	Pasture	65				7/				
	Other 1/	1,562	lbs.	264	412,368	0.1805	74,432.42	28.83	45,032.46	29,399.96
		324								
		8/								
	Total	3,241					160,630.70		112,727.20	47,903.50

11/ Farmsteads, farm roads, waste and non-agricultural.

2/ Data is same for both "with project" and "Without project" conditions, no Table IV C required.

3/ Parenthetical amounts are duplicated acreages.

4/ Calculated from columns 3 and 6; rounded to nearest unit.

5/ Composite price for lint and seed per pound of lint cotton.

6/ Calculated from columns 3 and 10; rounded to nearest cent.

7/ Composite value of veal calves and herd culls (beef cattle)

8/ Total does not include 50,759 acres of land that will remain in woods and water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE V
PROJECT AREA SUMMARY BY SOIL MAPPING UNITS

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 1
State: Mississippi

(1) Soil Unit	(2) Acres	(3) Gross	(4) Future Without Project (Production in Dollars)	(5) Net	(6) Gross	(7) Future with Project (Production in Dollars)	(8) Net	(9) Difference in net Production
1	362,551	15,635,199.56	11,477,740.51	4,157,459.05	22,692,999.70	15,914,865.94	6,778,133.76	2,620,674.71
2	56,874	5,900,003.85	4,257,336.06	1,642,667.79	6,753,301.55	4,853,298.45	1,935,003.10	292,355.31
3	1,525	149,787.30	107,758.11	42,029.19	170,704.26	123,612.19	47,092.07	5,062.88
4	9,828	1,684,254.14	1,213,120.87	471,133.27	1,760,810.65	1,274,428.87	506,381.78	35,248.51
5	24,837	4,085,847.62	2,984,330.38	1,101,517.24	4,228,136.09	3,082,209.22	1,145,926.87	44,409.63
6	56,305	6,358,800.98	4,685,159.89	1,673,641.09	7,123,658.46	5,179,501.82	1,944,156.64	270,515.55
11	274	9,787.61	6,225.03	3,562.58	9,787.61	6,225.03	3,562.58	0
14	0							
Total	512,194	33,823,681.06	24,731,670.85	9,092,010.21	42,794,398.32	30,434,141.52	12,360,256.80	3,268,246.59

1/ Total does not include 265,806 acres remaining in woods and water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE VI
LAND CONVERSIONS WITH PROJECT

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 1
State: Mississippi

(1) Type of Conversion <u>1/</u>	(2) Total amount	(3) Cost of clearing	(4) Cost of smoothing	(5) Cost of pasture establishment	(6) Cost of irrigation system	(7) Total cost
	Acres	Dollars	Dollars	Dollars	Dollars	Dollars
<u>Per Acre</u>						
W to GC	xx	55.00	12.50	xx	xx	
W to IC	xx	-		xx		
W to P	xx	55.00	5.00	55	xx	
P to GC	xx	xx	5.00	xx	xx	
P to IC	xx	xx		xx		
GC to IC	xx	xx	xx	xx		
GC to P	xx	xx	xx	55		
Total per acre	xx					
<u>Project</u>						
W to GC	36,276	1,995,180	453,450	xx	xx	2,448,630
W to IC	-			xx		
W to P	36,098	1,985,390	180,490	1,985,390	xx	4,151,270
P to GC	-	xx		xx	xx	
P to IC	-	xx		xx		
GC to IC	-	xx	xx	xx		
GC to P	10,486	xx	xx	576,730		576,730
Total project	xx	3,980,570	633,940	2,562,120		7,176,630
Annual amortized value <u>2/</u>	xx	xx	xx	xx	xx	393,136
Annual maintenance	xx	xx	xx	527,797	xx	527,797
Total annual cost of conversions	xx	xx	xx	xx	xx	920,933

1/ W--woodland; GC--general dry-farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent. (.05478)

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 1
State: Mississippi

TABLE VII
ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil Mapping unit and land use	Area	Construction Cost	Engineering Cost	Contingency cost	Total Cost	Amortization period	Annual equivalent installation cost	Annual maintenance cost	Annual cost	Total Annual Cost
	Acres	Dollars	Dollars	Dollars	Dollars	Years	Dollars	Dollars	Dollars	Dollars
Zone B 1	1/				2/					
1. General Crops	48,902:	14.35	701,744:	140,349:	70,174:	10	118,139:	105,262:	223,401	
1 Pasture	24,305:	8.05	195,655:	39,131:	19,566:	10	32,939:	5,870:	38,809	
2 General Crops	4,313:	12.25	52,834:	10,567:	5,283:	10	8,895:	7,925:	16,820	
2 Pasture	1,158:	8.05	9,322:	1,864:	932:	10	1,569:	230:	1,849	
3 General Crops	9:	10.60	95:	19:	10:	10	16:	19:	35	
3 Pasture	18:	8.10	146:	29:	15:	10	25:	15:	40	
4 General Crops	92:	10.00	920:	184:	92:	10	155:	133:	293	
5 General Crops	642:	10.00	6,420:	1,284:	642:	10	1,081:	963:	2,044	
5 Pasture	8:	4.20	34:	7:	3:	10	6:	1:	7	
6 General Crops	2,237:	10.60	23,712:	4,742:	2,371:	10	3,992:	4,742:	8,734	
6 Pasture	18:	8.10	146:	29:	15:	10	25:	15:	40	
Sub Total	81,702:		991,028:	198,205:	99,103:	10	166,842:	125,230:	292,072	

Table VII, Area 1 (Cont.)

(1) Soil Mapping unit and land use	(2) Area	(3) Construction Per Acre	(4) Cost: Total	(5) Engin- eering cost	(6) Contin- gency cost	(7) Total Cost instal- lation	(8) Amorti- zation period	(9) Annual equivalent installa- tion cost	(10) Annual main- tenance cost	(11) Total Annual Cost
Zone B 2	Acres	Dollars	Dollars	Dollars	Dollars	Dollars	Years	Dollars	Dollars	Dollars
	<u>1/</u>					<u>2/</u>				
1 General Crops	55,324:	14.35	801,074:	160,215:	80,107:	1,041,396:	15	100,328:	120,161:	220,439
1 Pasture	9,851:	8.05	79,301:	15,560:	7,930:	103,091:	15	9,932:	2,379:	12,311
2 General Crops	8,455:	12.25	103,574:	20,715:	10,357:	134,646:	15	12,972:	15,536:	28,508
2 Pasture	173:	8.05	1,393:	279:	139:	1,811:	15	174:	42:	216
3 General Crops	169:	10.60	1,791:	358:	179:	2,328:	15	224:	358:	582
3 Pasture	12:	8.10	97:	19:	10:	126:	15	12:	10:	22
4 General Crops	795:	10.00	7,950:	1,590:	795:	10,335:	15	996:	1,192:	2,153
4 Pasture	2:	4.20	8:	2:	1:	11:	15	1:	-	1
5 General Crops	1,215:	10.00	12,150:	2,430:	1,215:	15,795:	15	1,522:	1,822:	3,344
5 Pasture	4:	4.20	17:	3:	2:	22:	15	2:	1:	3
6 General Crops	8,201:	10.60	86,931:	17,386:	8,693:	113,010:	15	10,557:	17,386:	28,273
6 Pasture	83:	8.10	672:	134:	67:	873:	15	84:	67:	151
Sub Total	84,784:		1,094,958:	218,991:	109,495:	1,423,444:	15	137,134:	158,954:	296,088
Zone of Overlap										
1 General Crops	8,026:					149,725:	10	19,389:	17,275:	36,664
1 Pasture	2,392:					25,033:	10	3,242:	578:	3,820

Table VII, Area 1 (Cont.)

(1) Soil Mapping unit and land use	(2) Area	(3) Construction Cost Per Acre	(4) Total	(5) Engineering cost	(6) Contingency cost	(7) Total Cost Installation	(8) Amortization period	(9) Annual equivalent installation cost	(10) Annual main- tenance cost	(11) Total Annual Cost
	Acres	Dollars	Dollars	Dollars	Dollars	Dollars	Years	Dollars	Dollars	Dollars
2 General Crops	1/99					2/1,577	10	204	182	386
6 General Crops	91					1,249	10	162	192	354
Sub Total	10,608					177,584		22,997	18,227	41,224
Grand Total	177,094					2,839,364		326,973	302,411	629,384

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 1
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

Item	: Unit	: Amount	: Unit Cost	: Total Cost
	:	:	:	:
	:	:	: Dollars:	: Dollars
Excavation	: Cu.Yd.	: 3,942,218	: .15	: 591,333
Spreading spoil	: Cu.Yd.	: 2,036,794	: .03	: 61,104
Clearing right-of-way	: Ac.	: 946	: 75.00	: 70,950
Right-of-way easements	: Ac.	: 812	: 84.79	: 68,850
Crossings	: Ft.	: 886	: 40.00	: 35,440
Clearing and Snagging	: Mi.	: 380	: 234.21	: 89,000
Total construction cost	: xx	: xx	: xx	: 916,677
Engineering cost	: xx	: xx	: xx	: 91,668
Contingencies and legal	: xx	: xx	: xx	: 91,668
Total installation cost				:1,100,013
Annual equivalent - installation cost (amortized for 20 years at $3\frac{1}{2}$ percent)				: 77,396
Annual maintenance cost				: 45,834
Total annual cost of required group facilities				: 123,230

1. Introduction

The purpose of this study is to investigate the effects of the proposed system on the performance of the system. The study is divided into two main parts: a theoretical analysis and an experimental evaluation.

Theoretical Analysis		Experimental Evaluation	
1.1. System Overview	1.1.1. System Architecture	1.1.2. System Configuration	1.1.3. System Performance
1.2. System Requirements	1.2.1. Functional Requirements	1.2.2. Non-Functional Requirements	1.2.3. System Constraints
1.3. System Design	1.3.1. System Architecture	1.3.2. System Configuration	1.3.3. System Performance
1.4. System Implementation	1.4.1. System Architecture	1.4.2. System Configuration	1.4.3. System Performance
1.5. System Evaluation	1.5.1. System Architecture	1.5.2. System Configuration	1.5.3. System Performance
1.6. System Conclusion	1.6.1. System Architecture	1.6.2. System Configuration	1.6.3. System Performance
1.7. System Summary	1.7.1. System Architecture	1.7.2. System Configuration	1.7.3. System Performance
1.8. System References	1.8.1. System Architecture	1.8.2. System Configuration	1.8.3. System Performance
1.9. System Appendix	1.9.1. System Architecture	1.9.2. System Configuration	1.9.3. System Performance
1.10. System Bibliography	1.10.1. System Architecture	1.10.2. System Configuration	1.10.3. System Performance

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 1
 State: Mississippi

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS AND ASSOCIATED COSTS

(1)	:	(2)	:	(3)
Item	:	Total	:	Discounted
	:		:	amount
	:	<u>Dollars</u>	:	<u>Dollars</u>
1. Net return with project	:	12,360,257	:	
2. Net return without project	:	9,092,010	:	
3. Gross benefit to project	:	3,268,247	:	1,614,318 <u>1/</u>
4. Farm drainage cost	:		:	
a. Installation cost	:	326,973	:	
b. Maintenance cost	:	302,411	:	
c. Total	:	629,384	:	348,043 <u>2/</u>
5. Group drainage cost	:		:	
a. Installation cost	:	77,396	:	
b. Maintenance cost	:	45,834	:	
c. Total	:	123,230	:	92,376 <u>3/</u>
6. Conversion cost	:		:	
a. Installation cost	:	393,136	:	
b. Maintenance cost	:	527,797	:	
c. Total	:	920,933	:	509,267 <u>4/</u>

- 1/ Discount factor for 30 years @ 5% - .49394
2/ Discount factor for 25 years @ 5% - .55299
3/ Discount factor for 15 years @ ~~3~~¹/₂% - .74962
4/ Discount factor for 25 years @ 5% - .55299

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 2
 State: Mississippi

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION

(1)	(2)	(3)	(4)	(5)	(6)
Soil	Land use and crop	Acres	Production		
Unit	distribution		Unit	Per Acre	Total
		<u>2/</u>			
All	Open Land	35,086			
	Crops	31,578			
	Cotton	5,404	Lbs.lint	502	2,715,406
	Corn	3,748	bu.	3/4	128,401
	Soybeans	8,454	bu.	19	160,960
	Soybeans (Fol.Oats)	(4,641)	bu.	11	51,359
	Oats (Grain)	5,422	bu.	35	187,346
	Oats (Grazed)	(2,512)	Lbs.beef	78	194,701
	Idle	702			
	Pasture	7,848	Lbs.beef	207	1,625,031
	Other <u>1/</u>	3,508			
	Forest Land	<u>43,242</u>			
		<u>3/</u>			
	Total	78,328			

- 1/ Farmsteads, farm roads, waste and non-agricultural.
2/ Parenthetical amounts are duplicated acreages.
3/ Total does not include 19,672 acres remaining in woods and water area.

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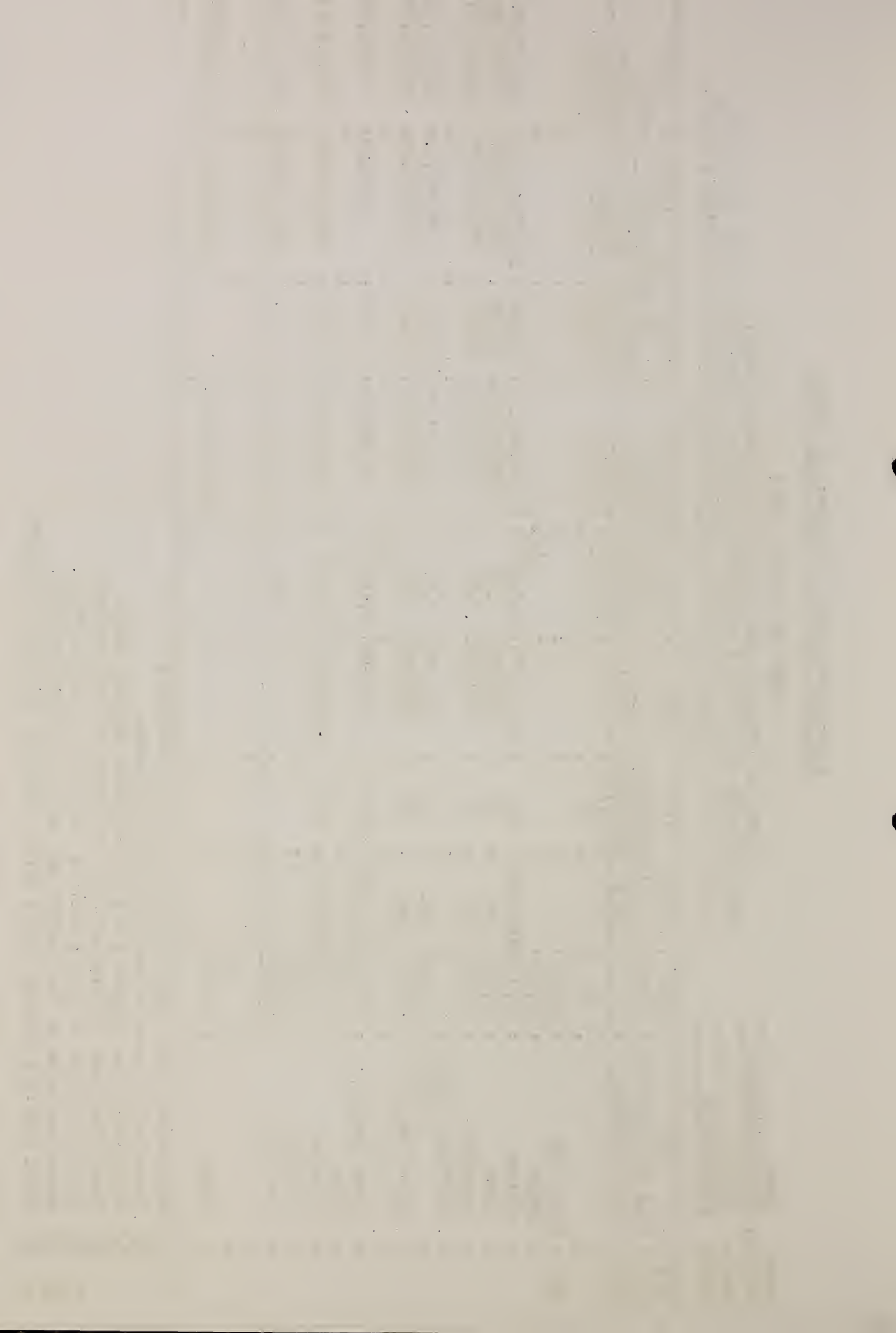
MISSISSIPPI RIVER & TRIBUTARIES STUDY

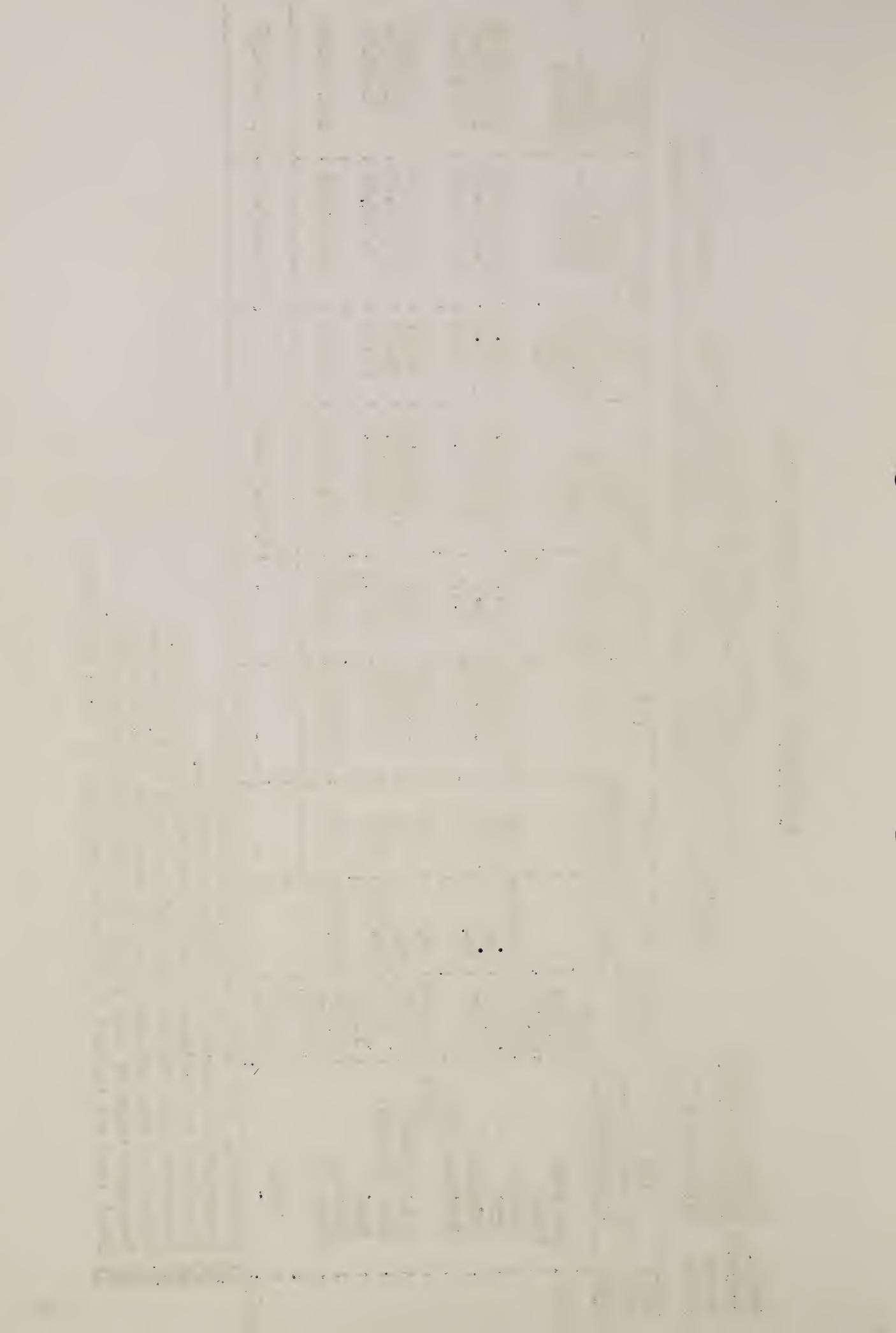
Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 2
State: Mississippi

SUMMARY - TABLE III B
(Zone for Drainage and Flood Control Calculations)
COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITHOUT FLOOD (Based on projected prices).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil	Land use and crop	Acres	Unit	Production	Total	Per Unit	Value of production	Cost of production	Net	Return
Unit	distribution			Per Acre		Dollars	Dollars	Per Acre	Total	Dollars
All	Open Land	2/		3/				5/		
	Crops	43,941								
	Cotton	29,547								
	Corn	12,373:lbs.lint:	594		7,351,884:	0.318266	2,340,001.75	149.80	1,853,423.90	486,577.85
	Soybeans	4,229: bu.	47		200,752:	1.45	291,090.40	43.44	183,722.11	107,368.29
	Soybeans (Pol.)	8,475: bu.	22		182,977:	2.35	429,995.95	127.83	235,821.28	194,174.67
	Oats	5,531: bu.	17		25,505:	2.35	60,171.75	25.31	38,756.90	21,414.85
	Oats (Grain)	3,714: bu.	41		152,226:	3.95	144,614.70	28.76	106,816.90	37,797.80
	Oats (Grazed)	(728):lbs.beef:	122		88,858:	0.1805	16,038.87	10.97	7,986.02	8,052.85
	Idle	879:								
	Pasture	9,877:lbs.beef:	246		2,430,746:	0.1905	438,753.26	27.90	275,542.09	163,211.17
	Other 1/	4,394:								
	Forest Land	23,590:				8.99	212,074.10	5.67	133,755.30	78,318.80
	Total	7/:								
		67,531:					3,932,740.78		2,835,824.50	1,096,916.28

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Calculated from columns 3 and 10; rounded to nearest cent.
- 6/ Composite value of veal calves and herd culls (beef cattle).
- 7/ Total does not include 30,469 acres remaining in woods and water.





MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 2
 State: Mississippi

SUMMARY -- TABLE II C (Zone of No Project Benefit) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

(1) :		(2)		(3)		(4)		(5)		(6)
Soil :		Land use and crop		Acres		Production				
Unit :		distribution				Unit		Per Acre		Total
:										:
All :		Open Land								:
		Crops								:
		Cotton								:
		Corn								:
		Soybeans								:
		Soybeans (Fol.Oats)								:
		Oats (Grain)								:
		Oats (Grazed)								:
		Idle								:
		Pasture								:
		Other								:
		Forest Land								:
										:
		Total <u>1/</u>		0						:
										:

1/ Total does not include 1,000 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

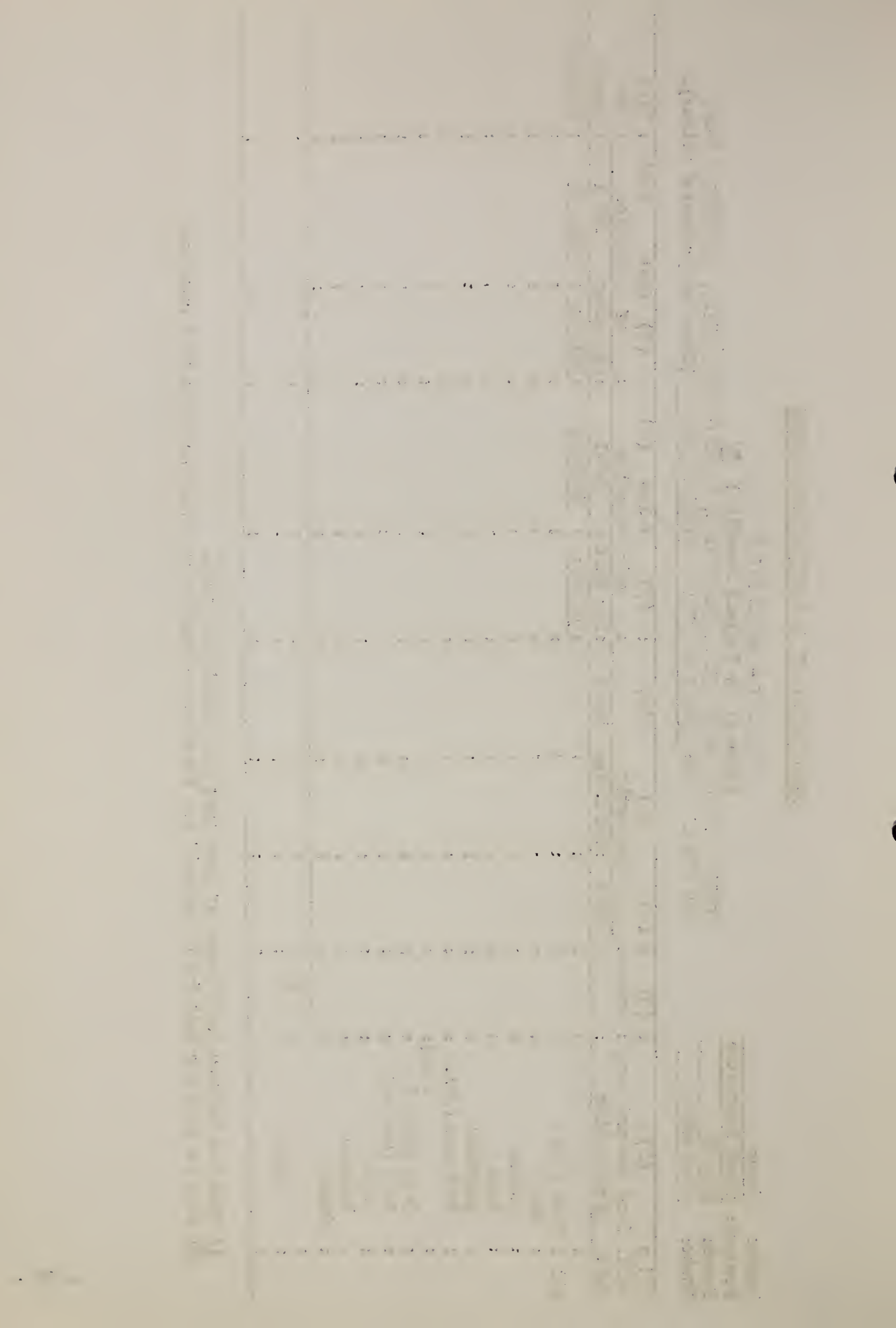
Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 2
 State: Mississippi

SUMMARY - TABLE III C
 (Zone of No Project Benefit) 2/
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil:	Land use and crop	Acres	Unit	Production	Value of production	Per Unit	Total	Per Acre	Cost of production	Net
Unit:	distribution	:	:	Per Acre	Total	Dollars	Dollars	Dollars	Total	Return
:	:	:	:	:	:	:	:	:	:	:
All	Open Land	:	:	:	:	:	:	:	:	:
:	Crops	:	:	:	:	:	:	:	:	:
:	Cotton	:	:	:	:	:	:	:	:	:
:	Corn	:	:	:	:	:	:	:	:	:
:	Soybeans	:	:	:	:	:	:	:	:	:
:	Soybeans (Fol.	:	:	:	:	:	:	:	:	:
:	Oats)	:	:	:	:	:	:	:	:	:
:	Oats (Grain)	:	:	:	:	:	:	:	:	:
:	Oats (Grazed)	:	:	:	:	:	:	:	:	:
:	Idle	:	:	:	:	:	:	:	:	:
:	Pasture	:	:	:	:	:	:	:	:	:
:	Other	:	:	:	:	:	:	:	:	:
:										
:		<u>1/</u>	:	:	:	:	:	:	:	:
:		0	:	:	:	:	:	:	:	:
:	Total	:	:	:	:	:	:	:	:	:

1/ Does not include 1,000 acres of land that will remain in woods.

2/ Data is same for both "with project" and "without project" conditions; no Table IV C required.



MISSISSIPPI RIVER & TRIUMPHANTS STUDY

TABLE V

PROJECT AP2A SUMMARY BY SOIL MAPPING UNITS

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 2
State: Mississippi

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Soil Unit	Acres	Gross	Future without Project (Production in Dollars) Cost	Net	Gross	Future with Project (Production in Dollars) Cost	Net	Difference in net Production
1	44,595	:1,331,255.14	:1,007,357.46	:323,867.68	:2,793,602.03	:2,106,100.09	:687,501.94	:363,634.26
4	8,230	:1,226,653.63	:878,801.99	:347,851.64	:1,294,756.59	:924,357.45	:370,409.14	:22,557.50
6	14,706	:1,374,852.01	:949,655.05	:425,196.96	:1,501,961.48	:1,039,838.29	:462,123.28	:36,926.32
Total	67,531	:3,932,740.78	:2,835,824.50	:1,096,916.28	:5,590,330.10	:4,070,295.74	:1,520,034.36	:423,118.08

1/ Total does not include 31,469 acres remaining in woods and water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 2
 State: Mississippi

TABLE VI
 LAND CONVERSIONS WITH PROJECT

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Type of Conversion <u>1/</u>	Total amount:	Cost of clearing:	Cost of smoothing:	Cost of Pasture establishment:	Cost of irrigation system:	Total Cost
	<u>Acres:</u>	<u>Dollars:</u>	<u>Dollars:</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
<u>Per Acre</u>						
W to GC	xx	55.00:	12.50	xx	xx	
W to IC	xx	-	-	xx		
W to P	xx	55.00:	5.00	45.00	xx	
P to GC	xx	xx	5.00	xx		
P to IC	xx	xx	-	xx	xx	
GC to IC	xx	xx	xx	xx		
GC to P	xx	xx	xx	-	-	
<u>Project</u>						
W to GC	15,581	856,955:	194,762	xx	xx	1,051,717
W to IC	0	-	-	xx	-	-
W to P	8,009	440,495:	40,045	360,405	xx	840,945
P to GC	72	xx	360	xx	xx	360
P to IC	0	xx	-	xx	-	-
GC to IC	0	xx	xx	xx	-	-
GC to P	0	xx	xx	-	-	-
<u>Total Project</u>	xx	1,297,450:	235,167:	360,405		1,893,022
<u>Annual amortized value <u>2/</u></u>	xx	xx	xx	xx	xx	103,700
<u>Annual maintenance</u>	xx	xx	xx	73,338	xx	73,338
<u>Total annual cost of conversions</u>						177,038

1/ W-- woodland; GC--general dry-farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent. (.05478)

REPORT ON THE PROGRESS OF THE WORK

During the period from 1st January to 31st December 1921, the following work has been completed:

Item	1st Jan	31st Dec	Total	1st Jan	31st Dec	Total	1st Jan	31st Dec	Total
1. General									
2. Particulars									
3. Sub-totals									
4. Grand Total									
5. Balance									
6. Total									
7. Total									
8. Total									
9. Total									
10. Total									
11. Total									
12. Total									
13. Total									
14. Total									
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91. Total									
92. Total									
93. Total									
94. Total									
95. Total									
96. Total									
97. Total									
98. Total									
99. Total									
100. Total									

Report prepared by the Committee on the 1st January 1922.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 2
 State: Mississippi

TABLE VII
 ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Soil Mapping unit and land use	Area	Construction Cost Per Acre	Cost	Engineering Cost	Contingency Cost	Total Cost	Annual equivalent Installation cost	Annual Maintenance Cost	Total Annual Cost
	Acres	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
	<u>1/</u>					<u>2/</u>	<u>3/</u>		
1 General Crops	14,172	14.35	203,368	40,674	20,337	264,379	34,237	30,505	64,742
1 Pasture	4,139	8.05	33,319	6,604	3,332	43,315	5,609	1,000	6,609
4 General Crops	709	10.00	7,090	1,418	709	9,217	1,194	1,064	2,253
4 Pasture	7	4.20	29	6	3	38	5	1	6
6 General Crops	1,166	10.60	12,360	2,472	1,236	16,068	2,081	2,472	4,553
6 Pasture	51	8.10	413	82	41	536	69	41	110
Total	20,244		256,579	51,316	25,658	333,553	43,195	35,083	78,278

- 1/ Does not include 10% other lands.
 2/ Includes engineering and contingency.
 3/ Amortized @ 5% over 10 years (.12950)

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 2
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

Item	Unit	Amount	Unit Cost	Total Cost
			<u>Dollars</u>	<u>Dollars</u>
Excavation	Cu. Yd.	443,927	.15	66,589
Spreading spoil	Cu. Yd.	94,626	.03	2,839
Clearing right-of-way	Ac.	244	75.00	18,300
Right-of-way easements	Ac.	160	77.34	12,375
Crossings	Ft.	176	40.00	7,040
Clearing and snagging	Mi.	30	263.33	7,900
Total construction cost	xx	xx	xx	115,043
Engineering cost	xx	xx	xx	11,504
Contingencies and legal	xx	xx	xx	11,504
Total installation cost				138,051
Annual equivalent - installation cost (amortized for 20 years at $3\frac{1}{2}$ percent)				7,913
Annual maintenance cost				5,752
Total annual cost of required group facilities				13,665
Discounted annual cost of required group facilities				-

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 2
 State: Mississippi

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS AND ASSOCIATED COSTS

(1)	:	(2)	:	(3)
Item	:	Total	:	Discounted
	:		:	Amount
	:	<u>Dollars</u>	:	<u>Dollars</u>
1. Net return with project	:	1,520,034	:	
2. Net return without project	:	1,096,916	:	
3. Gross benefit to project	:	423,118	:	233,980 1/
4. Farm drainage cost	:		:	
a. Installation cost	:	43,195	:	
b. Maintenance cost	:	35,083	:	
c. Total	:	78,278	:	48,631 2/
5. Group drainage cost	:		:	
a. Installation cost	:	7,913	:	
b. Maintenance	:	5,752	:	
c. Total	:	13,665	:	11,346 3/
6. Conversion cost	:		:	
a. Installation cost	:	103,700	:	
b. Maintenance cost	:	73,338	:	
c. Total	:	177,038	:	109,988 4/

- 1/ Discount factor for 25 years @ 5% - .55299
 2/ Discount factor for 20 years @ 5% - .62127
 3/ Discount factor for 10 years @ 3 1/2% - .83033
 4/ Discount factor for 20 years @ 5% - .62127

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 3
 State: Mississippi

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION

(1) :	(2)	(3)	(4)	(5)	(6)
Soil :	Land use and crop	Acres	Production		
Unit :	distribution		Unit	Per Acre	Total
:	:	2/	:	3/	:
All :	Open Land	8,705	:	:	:
:	Crops	7,834	:	:	:
:	Cotton	1,941	:Lbs. lint:	593	:1,151,528
:	Corn	1,263	: bu.	46	: 58,591
:	Soybeans	1,922	: bu.	20	: 37,762
:	Soybeans (Fol. Oats)	(444)	: bu.	13	: 5,641
:	Oats (Grain)	1,154	: bu.	40	: 45,737
:	Oats (Grazed)	(776)	:Lbs. beef:	107	: 83,290
:	Idle	174	:	:	:
:	Pasture	1,380	:Lbs. beef:	231	: 318,867
:	Other 1/	871	:	:	:
:	Forest Land	6,650	:	:	:
:	Total 4/	15,355	:	:	:

- 1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Parenthetical amounts are duplicated acreages.
 3/ Calculated from columns 3 and 6; rounded to nearest unit.
 4/ Total does not include 645 acres remaining in woods and water.

STATE OF TEXAS

County of _____
 State of Texas
 I, _____
 Clerk of the County of _____
 State of Texas

Know all men that _____
 of the County of _____
 State of Texas

Name		Address		Occupation		Date	
John Doe	123 Main St	123 Main St	123 Main St	Farmer	Farmer	1901	1901
Jane Smith	456 Oak St	456 Oak St	456 Oak St	Housewife	Housewife	1901	1901
Robert Brown	789 Elm St	789 Elm St	789 Elm St	Teacher	Teacher	1901	1901
Mary White	101 Pine St	101 Pine St	101 Pine St	Merchant	Merchant	1901	1901
James Black	202 Cedar St	202 Cedar St	202 Cedar St	Physician	Physician	1901	1901
Elizabeth Green	303 Birch St	303 Birch St	303 Birch St	Lawyer	Lawyer	1901	1901
William Hall	404 Spruce St	404 Spruce St	404 Spruce St	Engineer	Engineer	1901	1901
Anna King	505 Willow St	505 Willow St	505 Willow St	Artist	Artist	1901	1901
Thomas Lee	606 Ash St	606 Ash St	606 Ash St	Blacksmith	Blacksmith	1901	1901
Grace Miller	707 Hickory St	707 Hickory St	707 Hickory St	Musician	Musician	1901	1901
Charles Wilson	808 Sycamore St	808 Sycamore St	808 Sycamore St	Farmer	Farmer	1901	1901
Harriet Moore	909 Magnolia St	909 Magnolia St	909 Magnolia St	Housewife	Housewife	1901	1901
George Taylor	1010 Poplar St	1010 Poplar St	1010 Poplar St	Merchant	Merchant	1901	1901
Frances Adams	1111 Chestnut St	1111 Chestnut St	1111 Chestnut St	Teacher	Teacher	1901	1901
Edward Baker	1212 Walnut St	1212 Walnut St	1212 Walnut St	Physician	Physician	1901	1901
Ida Nelson	1313 Elm St	1313 Elm St	1313 Elm St	Lawyer	Lawyer	1901	1901
Frank Phillips	1414 Oak St	1414 Oak St	1414 Oak St	Engineer	Engineer	1901	1901
Martha Evans	1515 Pine St	1515 Pine St	1515 Pine St	Artist	Artist	1901	1901
Albert King	1616 Cedar St	1616 Cedar St	1616 Cedar St	Blacksmith	Blacksmith	1901	1901
Julia Wright	1717 Birch St	1717 Birch St	1717 Birch St	Musician	Musician	1901	1901
Harold Green	1818 Spruce St	1818 Spruce St	1818 Spruce St	Farmer	Farmer	1901	1901
Beatrice Hall	1919 Willow St	1919 Willow St	1919 Willow St	Housewife	Housewife	1901	1901
Clarence King	2020 Ash St	2020 Ash St	2020 Ash St	Merchant	Merchant	1901	1901
Edna Lee	2121 Hickory St	2121 Hickory St	2121 Hickory St	Teacher	Teacher	1901	1901
Walter Miller	2222 Sycamore St	2222 Sycamore St	2222 Sycamore St	Physician	Physician	1901	1901
Joseph Wilson	2323 Magnolia St	2323 Magnolia St	2323 Magnolia St	Lawyer	Lawyer	1901	1901
May Moore	2424 Poplar St	2424 Poplar St	2424 Poplar St	Engineer	Engineer	1901	1901
Samuel Taylor	2525 Chestnut St	2525 Chestnut St	2525 Chestnut St	Artist	Artist	1901	1901
Lucy Adams	2626 Walnut St	2626 Walnut St	2626 Walnut St	Blacksmith	Blacksmith	1901	1901
Frederick Baker	2727 Elm St	2727 Elm St	2727 Elm St	Musician	Musician	1901	1901
Clara Nelson	2828 Oak St	2828 Oak St	2828 Oak St	Farmer	Farmer	1901	1901
Harvey Phillips	2929 Pine St	2929 Pine St	2929 Pine St	Housewife	Housewife	1901	1901
Gertrude King	3030 Cedar St	3030 Cedar St	3030 Cedar St	Merchant	Merchant	1901	1901
William Wright	3131 Birch St	3131 Birch St	3131 Birch St	Teacher	Teacher	1901	1901
Elizabeth Green	3232 Spruce St	3232 Spruce St	3232 Spruce St	Physician	Physician	1901	1901
Charles Hall	3333 Willow St	3333 Willow St	3333 Willow St	Lawyer	Lawyer	1901	1901
Frances King	3434 Ash St	3434 Ash St	3434 Ash St	Engineer	Engineer	1901	1901
Albert Lee	3535 Hickory St	3535 Hickory St	3535 Hickory St	Artist	Artist	1901	1901
Ida Miller	3636 Sycamore St	3636 Sycamore St	3636 Sycamore St	Blacksmith	Blacksmith	1901	1901
Frank Wilson	3737 Magnolia St	3737 Magnolia St	3737 Magnolia St	Musician	Musician	1901	1901
Martha Moore	3838 Poplar St	3838 Poplar St	3838 Poplar St	Farmer	Farmer	1901	1901
Harold Taylor	3939 Chestnut St	3939 Chestnut St	3939 Chestnut St	Housewife	Housewife	1901	1901
Beatrice Adams	4040 Walnut St	4040 Walnut St	4040 Walnut St	Merchant	Merchant	1901	1901
Clarence Baker	4141 Elm St	4141 Elm St	4141 Elm St	Teacher	Teacher	1901	1901
Edna Nelson	4242 Oak St	4242 Oak St	4242 Oak St	Physician	Physician	1901	1901
Walter Phillips	4343 Pine St	4343 Pine St	4343 Pine St	Lawyer	Lawyer	1901	1901
Joseph King	4444 Cedar St	4444 Cedar St	4444 Cedar St	Engineer	Engineer	1901	1901
May Wright	4545 Birch St	4545 Birch St	4545 Birch St	Artist	Artist	1901	1901
Samuel Green	4646 Spruce St	4646 Spruce St	4646 Spruce St	Blacksmith	Blacksmith	1901	1901
Lucy Hall	4747 Willow St	4747 Willow St	4747 Willow St	Musician	Musician	1901	1901
Frederick King	4848 Ash St	4848 Ash St	4848 Ash St	Farmer	Farmer	1901	1901
Clara Lee	4949 Hickory St	4949 Hickory St	4949 Hickory St	Housewife	Housewife	1901	1901
Harvey Miller	5050 Sycamore St	5050 Sycamore St	5050 Sycamore St	Merchant	Merchant	1901	1901
Gertrude Wilson	5151 Magnolia St	5151 Magnolia St	5151 Magnolia St	Teacher	Teacher	1901	1901
William Moore	5252 Poplar St	5252 Poplar St	5252 Poplar St	Physician	Physician	1901	1901
Elizabeth Taylor	5353 Chestnut St	5353 Chestnut St	5353 Chestnut St	Lawyer	Lawyer	1901	1901
Charles Adams	5454 Walnut St	5454 Walnut St	5454 Walnut St	Engineer	Engineer	1901	1901
Frances Baker	5555 Elm St	5555 Elm St	5555 Elm St	Artist	Artist	1901	1901
Albert Nelson	5656 Oak St	5656 Oak St	5656 Oak St	Blacksmith	Blacksmith	1901	1901
Ida Phillips	5757 Pine St	5757 Pine St	5757 Pine St	Musician	Musician	1901	1901
Frank King	5858 Cedar St	5858 Cedar St	5858 Cedar St	Farmer	Farmer	1901	1901
Martha Lee	5959 Birch St	5959 Birch St	5959 Birch St	Housewife	Housewife	1901	1901
Harold Miller	6060 Spruce St	6060 Spruce St	6060 Spruce St	Merchant	Merchant	1901	1901
Beatrice Wilson	6161 Willow St	6161 Willow St	6161 Willow St	Teacher	Teacher	1901	1901
Clarence Moore	6262 Ash St	6262 Ash St	6262 Ash St	Physician	Physician	1901	1901
Edna Taylor	6363 Hickory St	6363 Hickory St	6363 Hickory St	Lawyer	Lawyer	1901	1901
Walter Adams	6464 Sycamore St	6464 Sycamore St	6464 Sycamore St	Engineer	Engineer	1901	1901
Joseph Baker	6565 Magnolia St	6565 Magnolia St	6565 Magnolia St	Artist	Artist	1901	1901
May Nelson	6666 Poplar St	6666 Poplar St	6666 Poplar St	Blacksmith	Blacksmith	1901	1901
Samuel Phillips	6767 Chestnut St	6767 Chestnut St	6767 Chestnut St	Musician	Musician	1901	1901
Lucy King	6868 Walnut St	6868 Walnut St	6868 Walnut St	Farmer	Farmer	1901	1901
Frederick Lee	6969 Elm St	6969 Elm St	6969 Elm St	Housewife	Housewife	1901	1901
Clara Miller	7070 Oak St	7070 Oak St	7070 Oak St	Merchant	Merchant	1901	1901
Harvey Wilson	7171 Pine St	7171 Pine St	7171 Pine St	Teacher	Teacher	1901	1901
Gertrude Moore	7272 Cedar St	7272 Cedar St	7272 Cedar St	Physician	Physician	1901	1901
William Taylor	7373 Birch St	7373 Birch St	7373 Birch St	Lawyer	Lawyer	1901	1901
Elizabeth Adams	7474 Spruce St	7474 Spruce St	7474 Spruce St	Engineer	Engineer	1901	1901
Charles Baker	7575 Willow St	7575 Willow St	7575 Willow St	Artist	Artist	1901	1901
Frances Nelson	7676 Ash St	7676 Ash St	7676 Ash St	Blacksmith	Blacksmith	1901	1901
Albert King	7777 Hickory St	7777 Hickory St	7777 Hickory St	Musician	Musician	1901	1901
Ida Lee	7878 Sycamore St	7878 Sycamore St	7878 Sycamore St	Farmer	Farmer	1901	1901
Frank Miller	7979 Magnolia St	7979 Magnolia St	7979 Magnolia St	Housewife	Housewife	1901	1901
Martha Wilson	8080 Poplar St	8080 Poplar St	8080 Poplar St	Merchant	Merchant	1901	1901
Harold Moore	8181 Chestnut St	8181 Chestnut St	8181 Chestnut St	Teacher	Teacher	1901	1901
Beatrice Taylor	8282 Walnut St	8282 Walnut St	8282 Walnut St	Physician	Physician	1901	1901
Clarence Adams	8383 Elm St	8383 Elm St	8383 Elm St	Lawyer	Lawyer	1901	1901
Edna Baker	8484 Oak St	8484 Oak St	8484 Oak St	Engineer	Engineer	1901	1901
Walter Nelson	8585 Pine St	8585 Pine St	8585 Pine St	Artist	Artist	1901	1901
Joseph King	8686 Cedar St	8686 Cedar St	8686 Cedar St	Blacksmith	Blacksmith	1901	1901
May Lee	8787 Birch St	8787 Birch St	8787 Birch St	Musician	Musician	1901	1901
Samuel Miller	8888 Spruce St	8888 Spruce St	8888 Spruce St	Farmer	Farmer	1901	1901
Lucy Wilson	8989 Willow St	8989 Willow St	8989 Willow St	Housewife	Housewife	1901	1901
Frederick Moore	9090 Ash St	9090 Ash St	9090 Ash St	Merchant	Merchant	1901	1901
Clara Taylor	9191 Hickory St	9191 Hickory St	9191 Hickory St	Teacher	Teacher	1901	1901
Harvey Adams	9292 Sycamore St	9292 Sycamore St	9292 Sycamore St	Physician	Physician	1901	1901
Gertrude Baker	9393 Magnolia St	9393 Magnolia St	9393 Magnolia St	Lawyer	Lawyer	1901	1901
William King	9494 Poplar St	9494 Poplar St	9494 Poplar St	Engineer	Engineer	1901	1901
Elizabeth Lee	9595 Chestnut St	9595 Chestnut St	9595 Chestnut St	Artist	Artist	1901	1901
Charles Miller	9696 Walnut St	9696 Walnut St	9696 Walnut St	Blacksmith	Blacksmith	1901	1901
Frances Wilson	9797 Elm St	9797 Elm St	9797 Elm St	Musician	Musician	1901	1901
Albert Moore	9898 Oak St	9898 Oak St	9898 Oak St	Farmer	Farmer	1901	1901
Ida Taylor	9999 Pine St	9999 Pine St	9999 Pine St	Housewife	Housewife	1901	1901

Witness my hand and seal this _____ day of _____ 1901.

 Clerk of the County of _____
 State of Texas

MISSISSIPPI RIVER & TRIBUTARIES STUDY

SUMMARY - TABLE III B

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 3
 State: Mississippi

(Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil	Land use and crop	Acres	Production	Unit	Per Acre	Per Unit	Value of production	Cost of production	Net	
Unit	distribution				Total	Total	Total	Total	Return	
					Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All	Open Land	2/		3/				5/		
	Crops	9,953:								
	Cotton	8,957:								
	Corn	3,435:lbs.lint:	671		2,303,771:	0.318286:	733,258.06:	163.97 :	563,223.42:	170,034.64
	Soybeans	1,414: bu.	63		88,483:	1.45 :	128,300.35:	50.73 :	71,737.55:	56,562.80
	Soybeans (Fol.	1,336: bu.	29		39,164:	2.35 :	92,035.40:	36.13 :	48,271.93:	43,763.47
	Oats	(459):								
	Oats (Grain)	816: bu.	18		8,067:	2.35 :	18,957.45:	26.08 :	11,969.94:	6,987.51
	Oats (Grazed)	199:			36,342:	0.95 :	34,524.90:	31.00 :	25,293.31:	9,231.59
	Idle	(513):lbs.beef:	126		64,399:	0.1805 :	11,624.02:	11.33 :	5,811.04:	5,812.98
	Pasture	1,757:lbs.beef:	260		456,481:	0.1805 :	82,394.82:	27.39 :	48,125.81:	34,269.01
	Other 1/	596:								
	Forest Land	3,372:				8.51 :	28,695.72:	5.22 :	17,601.84:	11,093.88
	Total	13,325:					1,129,790.72:		792,034.84:	337,755.88

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Parenthetical amounts are duplicated acreages.
 3/ Calculated from columns 3 and 6; rounded to nearest unit.
 4/ Composite price for lint and seed per pound of lint cotton.
 5/ Calculated from columns 3 and 10; rounded to nearest cent.
 6/ Composite value of veal calves and herd culls (beef cattle).
 7/ Total does not include 2,675 acres to remain in woods and water.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 3
State: Mississippi

SUMMARY - TABLE IV B
(Zone for Drainage and Flood Control Calculations)
COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS
AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil:	Land use and crop	Acres	Unit	Production	Total	Per Unit	Value of production	Per Acre	Cost of production	Net Return
Unit:	distribution			Per Acre	Total	Dollars	Dollars	Dollars	Total	Dollars
All:	Open Land	2/		3/				5/		
:	Crops	13,325								
:	Cotton	11,993				4/				
:	Corn	4,257	lbs. lint	694	2,956,078	0.318236	940,878.24	169.04	719,593.97	221,284.27
:	Soybeans	1,683	bu.	65	109,847	1.45	159,278.15	53.86	90,654.65	68,623.50
:	Soybeans (Fol. Oats)	1,678	bu.	31	51,928	2.35	122,030.80	39.16	65,710.14	56,320.66
:	Oats (Grain)	(896)	bu.	16	13,969	2.35	32,827.15	26.25	23,523.22	9,303.93
:	Oats (Grazed)	966	bu.	48	46,200	0.95	43,890.00	32.45	31,348.82	12,541.18
:	Idle	(582)	lbs. beef	136	79,123	0.1805	14,281.70	12.46	7,249.38	7,032.32
:	Pasture	266								
:	Other 1/	3,143	lbs. beef	271	851,674	0.1805	153,727.16	29.07	91,336.62	62,390.54
:		1,352								
:	Total	13,325					1,466,913.20		1,029,416.80	437,496.40

- 1/ Farmsteads, farm roads, waste and non-agricultural.
- 2/ Parenthetical amounts are duplicated acreages.
- 3/ Calculated from columns 3 and 6; rounded to nearest unit.
- 4/ Composite price for lint and seed per pound of lint cotton.
- 5/ Calculated from columns 3 and 10; rounded to nearest cent.
- 6/ Composite value of veal calves and herd culls (beef cattle).
- 7/ Total does not include 2,675 acres remaining in woods and water.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 3
 State: Mississippi

SUMMARY - TABLE II C (Zone of No Project Benefit) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

(1)	(2)	(3)	(4)	(5)	(6)
Soil	Land use and crop	Acres	Production		
Unit	distribution		Unit	Per Acre	Total
:	:	:	:	:	:
All	Open Land	:	:	:	:
:	Crops	:	:	:	:
:	Cotton	:	:	:	:
:	Corn	:	:	:	:
:	Soybeans	:	:	:	:
:	Soybeans (Fol.Oats)	:	:	:	:
:	Oats (Grain)	:	:	:	:
:	Oats (Grazed)	:	:	:	:
:	Idle	:	:	:	:
:	Pasture	:	:	:	:
:	Other <u>1/</u>	:	:	:	:
:	Woodland	:	:	:	:
:		:	:	:	:
:	Total <u>2/</u>	0	:	:	:
:		:	:	:	:

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Total does not include 1,000 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 3
 State: Mississippi

SUMMARY - TABLE III C
 (Zone of No Project Benefit) 2/
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil:	Land use and crop	Acres	Unit	Production	Total	Per Unit	Value of production	Cost of production	Total	Net
Unit:	distribution	:	:	Per Acre:	Total	Dollars	Dollars	Per Acre:	Dollars	Return
All	Open Land	:	:	:	:	:	:	:	:	:
:	Crops	:	:	:	:	:	:	:	:	:
:	Cotton	:	:	:	:	:	:	:	:	:
:	Corn	:	:	:	:	:	:	:	:	:
:	Soybeans	:	:	:	:	:	:	:	:	:
:	Soybeans (Fol.	:	:	:	:	:	:	:	:	:
:	Oats)	:	:	:	:	:	:	:	:	:
:	Oats (Grain)	:	:	:	:	:	:	:	:	:
:	Oats (Grazed)	:	:	:	:	:	:	:	:	:
:	Idle	:	:	:	:	:	:	:	:	:
:	Pasture	:	:	:	:	:	:	:	:	:
:	Other 1/	:	:	:	:	:	:	:	:	:
3/	Total	:	:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:	:	:	:

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Data is same for both "with project" and "without project" conditions; no Table IV C required.

3/ Total does not include 1,000 acres of land that will remain in woods.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 3
State: Mississippi

TABLE V

PROJECT AREA SUMMARY BY SOIL MAPPING UNITS

(1)	(2)	(3)	(4)		(5)	(6)		(7)		(8)	(9)
Soil Unit	Acres		Future Without Project (Production in Dollars)			Future With Project (Production in Dollars)					Difference in net Production
		Gross	Cost	Net		Gross	Cost	Net			
1	4,072	100,972.61	74,439.72	26,432.89		280,862.13	209,122.99	71,739.14		145,256.25	
4	4,512	568,049.28	394,709.86	173,339.42		609,257.26	420,673.72	188,583.54		15,244.12	
6	2,496	174,722.39	128,363.06	46,359.33		265,875.47	188,583.78	77,291.69		30,932.36	
7	2,032	269,810.13	182,099.06	87,711.07		288,360.70	193,912.84	94,447.86		6,736.79	
8	213	16,236.31	12,373.14	3,863.17		22,557.64	17,123.47	5,434.17		1,571.00	
Total	13,325	1,129,790.72	792,034.84	337,755.88		1,465,913.20	1,029,416.80	437,496.40		99,710.52	

1/ Total does not include 3,675 acres remaining in woods and water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 3
 State: Mississippi

TABLE VI
LAND CONVERSIONS WITH PROJECT

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Type of Conversion <u>1/</u>	Total amount	Cost of clearing	Cost of smoothing	Cost of establishment	Cost of irrigation system	Total Cost
	Acres	Dollars	Dollars	Dollars	Dollars	Dollars
<u>Per Acre</u>						
W to GC	xx	55.00	12.50	xx	xx	
W to IC	xx	-	-	xx	xx	
W to P	xx	55.00	5.00	47	xx	
P to GC	xx	xx	5.00	xx	xx	
P to IC	xx	xx	-	xx	-	
GC to IC	xx	xx	xx	xx	-	
GC to P	xx	xx	xx	-	-	
<u>Project</u>						
W to GC	1,950	107,250	24,375	xx	xx	131,625
W to IC	-	-	-	xx	-	-
W to P	1,422	78,210	7,110	66,834	xx	152,154
P to GC	36	xx	180	xx	xx	180
P to IC	-	xx	-	xx	-	-
GC to IC	-	xx	xx	xx	-	-
GC to P	-	xx	xx	-	-	-
Total Project	xx	185,460	31,665	66,834	-	283,959
Annual amortized value <u>2/</u>	xx	xx	xx	xx	xx	15,555
Annual maintenance	xx	xx	xx	13,555	xx	13,555
Total annual cost of con-	xx	xx	xx	xx	xx	29,110

1/ W--woodland; GC--general dry-farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent. (.05478)

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE VII
ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 3
State: Mississippi

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Soil Mapping unit and land use	Area	Construction Cost Per Acre	Engineering Cost	Contingency Cost	Total Cost	Annual Equivalent Installation Cost	Annual Equivalent Installation Cost	Annual Equivalent Installation Cost	Total Annual Cost
	Acres	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1 General Crops	1,221	14.35	17,521	3,504	1,752	22,777	2,950	2,628	5,578
1 Pasture	1,152	8.05	9,435	1,887	944	12,666	1,588	283	1,871
4 General Crops	779	10.00	7,790	1,553	779	10,127	1,311	1,158	2,479
4 Pasture	8	4.20	34	7	3	44	6	1	7
6 General Crops	1,064	10.60	11,278	2,256	1,128	14,662	1,899	2,256	4,155
6 Pasture	70	8.10	567	113	57	737	95	57	152
7 General Crops	201	12.50	2,512	502	251	3,265	423	377	800
7 Pasture	1	11.35	11	2	1	14	2	-	2
8 General Crops	62	12.50	775	155	78	1,003	131	116	247
8 Pasture	1	11.35	11	2	1	14	2	-	2
Total	4,579		49,934	9,986	4,994	64,914	8,407	6,886	15,293

1/ Does not include 10% other lands.
2/ Includes engineering and contingency.
3/ Amortized 65% over 10 years (.12950)

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 3
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

Item	: Unit	: Amount	: Unit Cost	: Total Cost
			<u>Dollars</u>	<u>Dollars</u>
Excavation	: Cu.Yd.	: 115,307	: .15	: 17,296
Spreading Spoil	: Cu.Yd.	: 46,347	: .03	: 1,390
Clearing right-of-way	: Ac.	: 14	: 75.00	: 1,050
Right-of-way easements	: Ac.	: 19	: 78.95	: 1,500
Crossings	: Ft.	: 58	: 40.00	: 2,320
Clearing and Snagging	: Mi.	: 5	: 215.69	: 1,100
Total construction cost	: xx	: xx	: xx	: 24,656
Engineering cost	: xx	: xx	: xx	: 2,466
Contingencies and legal	: xx	: xx	: xx	: 2,466
Total installation cost				: 29,588
Annual equivalent - installation cost (amortized for 20 years at $3\frac{1}{2}$ percent)				: 2,082
Annual maintenance cost				: 1,233
Total annual cost of required group facilities				: 3,315

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 3
 State: Mississippi

TABLE IX
SUMMARY OF ANNUAL NET PRODUCTION RETURNS AND ASSOCIATED COSTS

(1)	:	(2)	:	(3)
Item	:	Total	:	Discounted
	:		:	amount
	:	<u>Dollars</u>	:	<u>Dollars</u>
1. Net return with project	:	437,496	:	
2. Net return without project	:	337,756	:	
3. Gross benefit to project	:	99,740	:	69,841 1/
4. Farm drainage cost	:		:	
a. Installation cost	:	8,407	:	
b. Maintenance cost	:	6,886	:	
c. Total	:	15,293	:	12,124 2/
5. Group drainage cost	:		:	
a. Installation cost	:	2,082	:	
b. Maintenance cost	:	1,233	:	
c. Total	:	3,315	:	3,051 3/
6. Conversion cost	:		:	
a. Installation cost	:	15,555	:	
b. Maintenance cost	:	13,555	:	
c. Total	:	29,110	:	23,077 4/

- 1/ Discount factor for 15 years @ 5% - .70023
 2/ Discount factor for 10 years @ 5% - .79275
 3/ Discount factor for 5 years @ 3½% - .92028
 4/ Discount factor for 10 years @ 5% - .79275

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 4
 State: Mississippi

SUMMARY - TABLE II B (Zone for Drainage and Flood Control Calculations) COMPUTATION OF AGRICULTURAL PRODUCTION

(1) :	(2) :	(3) :	(4) :	(5)	(6)
Soil :	Land use and crop :	Acres :	Production		
Unit :	distribution :		Unit :	Per Acre :	Total
All :		2/		3/	
: Open Land	: 9,220	:	:	:	:
: Crops	: 8,297	:	:	:	:
: Cotton	: 1,475	: Lbs.Lint	: 499	:	: 735,348
: Corn	: 2,943	: Bu.	: 38	:	: 110,493
: Soybeans	: 1,593	: Bu.	: 18	:	: 29,179
: Soybeans (Fol.	:	:	:	:	:
: Oats)	: (397)	: Bu.	: 11	:	: 4,447
: Oats (Grain)	: 695	: Bu.	: 37	:	: 25,440
: Oats (Grazed)	: (701)	: Lbs.beef	: 31	:	: 22,000
: Idle	: 184	:	:	:	:
: Pasture	: 1,407	: Lbs.beef	: 276	:	: 387,788
: Other 1/	: 923	:	:	:	:
: Forest Land	: 17,417	:	:	:	:
:	4/	:	:	:	:
: Total	: 26,637	:	:	:	:
:	:	:	:	:	:

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Total does not include 363 acres remaining in woods and water.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 4
 State: Mississippi

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil	Land use and crop	Acres	Unit	Production	Total	Per Unit	Value of production	Per Acre	Cost of production	Net
Unit	distribution			Per Acre	Total	Dollars	Dollars	Dollars	Total	Return
		2/		3/		Dollars	Dollars	Dollars	Dollars	Dollars
All	Open Land							5/		
	Crops	14,963:								
	Cotton	13,466:				4/				
	Corn	3,947:lbs.lint:		517	2,041,938:	0.318286:	641,326.56	131.74	519,989.22	121,337.34
	Soybeans	3,354: bu.		44	147,713:	1.45	214,183.85	39.82	133,572.75	80,611.10
	Soybeans (Fol.	3,742: bu.		18	67,055:	2.35	157,579.25	24.95	93,360.18	64,219.07
	Oats (Grain)	(189): bu.		14	2,656:	2.35	6,241.60	23.90	4,516.66	1,724.94
	Oats (Grazed)	572: bu.		35	19,813:	0.95	18,822.35	25.43	14,546.49	4,275.86
	Idle					6/				
	Pasture	(144):lbs.beef:		123	16,715:	0.1805	3,017.06	10.33	1,488.13	1,528.93
	Other 1/	300:								
	Forest land	1,551:lbs.beef:		287	442,807:	0.1805	79,926.66	28.50	14,191.88	35,734.78
		1,497:								
		6,881:				6.85	47,134.85	4.25	29,244.25	17,890.60
		7/								
	Total	21,844:					1,168,232.18:		840,909.56	327,322.62

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Parenthetical amounts are duplicated acreages.
 3/ Calculated from columns 3 and 6; rounded to nearest unit.
 4/ Composite price for lint and seed per pound of lint cotton.
 5/ Calculated from columns 3 and 10; rounded to nearest cent.
 6/ Composite value of veal calves and herd culls (beef cattle).
 7/ Total does not include 5,156 acres remaining in woods and water.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)

COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS
AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices).

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 4
State: Mississippi

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil:	Land use and crop	Acres	Unit	Production	Total	Per Unit	Value of production	Per Acre	Cost of production	Net
Unit:	distribution			Per Acre	Total	Dollars	Dollars	Dollars	Total	Return
All	Open Land	21,844		3/						
	Crops	19,660						5/		
	Cotton	5,356	lbs. lint	598	3,204,674	0.318236	1,020,002.87	151.80	813,044.56	206,958.31
	Corn	4,243	bu.	50	211,876	1.45	307,220.20	45.72	193,976.87	113,243.33
	Soybeans	6,440	bu.	24	157,222	2.35	369,471.70	31.65	203,835.43	165,635.27
	Soybeans (Fol. Oats)	(253)	bu.	15	3,904	2.35	9,174.40	25.45	6,566.24	2,603.16
	Oats (Grain)	690	bu.	45	30,732	0.95	29,195.40	30.12	20,783.18	8,412.22
	Oats (Grazed)	(127)	lbs. beef	123	15,575	0.1805	2,811.29	11.09	1,408.62	1,402.67
	Idle	438								
	Pasture	2,493	lbs. beef	300	747,511	0.1805	135,674.81	30.64	76,392.74	59,282.07
	Other 1/	2,184								
	Total	21,844					1,873,550.67		1,116,008.64	557,542.03

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Parenthetical amounts are duplicated acreages.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Composite price for lint and seed per pound of lint cotton.

5/ Calculated from columns 3 and 10; rounded to nearest cent.

6/ Composite value of veal calves and herd culls (beef cattle).

7/ Does not include 5,156 acres remaining in woods and water.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 4
 State: Mississippi

SUMMARY - TABLE II C (Zone of No Project Benefit) COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

(1) :	(2)	(3)	(4)	(5)	(6)
Soil:	Land use and crop	Acres	Production		
Unit:	distribution		Unit	Per Acre:	Total
:	:	<u>2/</u>	:	<u>3/</u>	:
:	:	:	:	:	:
All :	Open Land	280	:	:	:
:	Crops	:	:	:	:
:	Cotton	:	:	:	:
:	Corn	:	:	:	:
:	Soybeans	:	:	:	:
:	Soybeans (Fol. Cats)	:	:	:	:
:	Oats (Grain)	:	:	:	:
:	Oats (Grazed)	:	:	:	:
:	Idle	6	:	:	:
:	Pasture	246	Lbs. beef	153	37,638
:	Other <u>1/</u>	28	:	:	:
:	Forest Land	<u>1,750</u>	:	:	:
:	:	<u>4/</u>	:	:	:
:	Total	2,030	:	:	:
:	:	:	:	:	:

- 1/ Farmsteads, farm roads, waste and non-agricultural.
2/ Parenthetical amounts are duplicated acreages.
3/ Calculated from columns 3 and 6; rounded to the nearest unit.
4/ Total does not include 2,970 acres of land that will remain in woods and water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

SUMMARY - TABLE III C

(Zone of No Project Benefit) 2/
COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 4
State: Mississippi

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Soil:	Land use and crop	Acres	Unit	Production	Total	Value	of production	Cost	of production	Net
Unit:	distribution		Per Acre	Per Unit	Total	Dollars	Per Acre	Total	Dollars	Return
All	Open Land									
	Crops	2,030		3/				5/		
	Cotton									
	Corn									
	Soybeans									
	Soybeans (Fol. Oats)									
	Oats (Grain)									
	Oats (Grazed)									
	Idle	41				4/				
	Pasture	1,786	lbs. beef	175	312,550	0.1805	56,415.28	18.19	32,487.34	23,927.94
	Other 1/	203								
		6/								
	Total	2,030					56,415.28		32,487.34	23,927.94

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Data is same for both "with project" and "without project" conditions; no Table IV C required.

3/ Calculated from columns 3 and 6; rounded to nearest unit.

4/ Composite value of veal calves and herd culls (beef cattle).

5/ Calculated from columns 3 and 10; rounded to nearest cent.

6/ Total does not include 2,970 acres of land that will remain in woods and water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 4
 State: Mississippi

TABLE V
 PROJECT AREA SUMMARY BY SOIL MAPPING UNITS

(1) Soil Unit	(2) Acres	(3) Gross	(4) Future Without Project (Production in Dollars)	(5) Net	(6) Gross	(7) Future With Project (Production in Dollars)	(8) Net	(9) Difference in net Production
1	14,404	325,736.56	249,266.83	76,469.73	898,906.32	648,670.37	250,235.95	173,766.22
4	977	118,522.66	82,067.18	36,455.48	112,970.94	76,353.06	36,617.88	162.40
6	2,730	208,532.21	154,648.79	53,883.42	256,944.33	179,353.24	77,591.09	23,707.67
7	4,150	465,145.85	306,063.17	159,080.68	510,128.81	333,998.23	176,130.58	17,049.90
8	1,613	106,712.18	81,350.93	25,361.25	151,015.55	110,121.08	40,894.47	15,553.22
Total	23,874 ^{1/}	1,224,647.46	873,396.90	351,250.56	1,929,965.95	1,348,495.98	581,469.97	230,219.41

^{1/} Total does not include 8,126 acres remaining in woods and water area.

MISSISSIPPI RIVER & TRIBUTARIES STUDY

TABLE VI
LAND CONVERSIONS WITH PROJECT

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 4
State: Mississippi

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Type of Conversion <u>1/</u>	Total amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Cost of irrigation system	Total cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
<u>Per Acre</u>						
W to GC	xx	55.00	12.50	xx	xx	
W to IC	xx	--	--	xx	--	
W to P	xx	55.00	5.00	52	xx	
P to GC	xx	xx	--	xx	xx	
P to IC	xx	xx	--	xx	--	
GC to IC	xx	xx	xx	xx	--	
GC to P	xx	xx	xx	52	--	
<u>Project</u>						
W to GC	6,177	339,735	77,212	xx	xx	416,947
W to IC	--	--	--	xx	--	
W to P	704	38,720	3,520	36,608	xx	78,848
P to GC	--	xx	--	xx	xx	--
P to IC	--	xx	--	xx	--	--
GC to IC	--	xx	xx	xx	--	--
GC to P	238	xx	xx	12,376	--	12,376
<u>Total Project</u>	xx	378,455	80,732	48,984		508,171
<u>Annual amortized value <u>2/</u></u>	xx	xx	xx	xx	xx	27,838
<u>Annual maintenance</u>	xx	xx	xx	10,202	xx	10,202
<u>Total annual cost of conversions</u>	xx	xx	xx	xx	xx	38,040

1/ W--woodland; GC--general dry-farmed crops; IC--irrigated crops (rice); P--pasture.

2/ Amortized over 50-year period at 5 percent. (.05478)

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
Project: Yazoo Backwater
Reach: Area 4
State: Mississippi

TABLE VII
ANALYSIS OF FARM DRAINAGE SYSTEM COSTS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Soil Mapping unit and land use	Area	Construction Cost Per Acre	Cost	Engineering Cost	Contingency Cost	Total Cost	Annual equivalent Installation cost	Annual Maintenance Cost	Total Annual Cost
	Acres	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1 General Crops	7,909	14.35	113,494	22,699	11,349	147,542	19,107	17,024	36,131
1 Pasture	330	8.05	2,656	531	266	3,453	447	80	527
4 General Crops	86	10.00	860	172	86	1,113	145	129	274
4 Pasture	8	4.20	34	7	3	44	6	1	7
6 General Crops	896	10.60	9,498	1,900	950	12,347	1,599	1,900	3,499
6 Pasture	71	8.10	575	115	58	748	97	58	155
7 General Crops	557	12.50	6,962	1,392	696	9,050	1,172	1,044	2,216
7 Pasture	12	11.35	136	27	14	177	23	4	27
8 General Crops	684	12.50	8,550	1,710	855	11,115	1,439	1,282	2,721
8 Pasture	40	11.35	454	90	45	590	76	14	90
Total	10,594		143,219	28,643	14,322	186,184	24,111	21,536	45,647

- 1/ Does not include 10% other lands.
2/ Includes engineering and contingency.
3/ Amortized @ 5% over 10 years (.12950)

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 4
 State: Mississippi

TABLE VIII
 ANALYSIS OF GROUP DRAINAGE NEEDS AND COSTS

Item	: Unit	: Amount	: Unit Cost	: Total Cost
			<u>Dollars</u>	<u>Dollars</u>
Excavation	: Cu.Yd.	: 683,491	: .15	: 102,524
Spreading Spoil	: Cu.Yd.	: 244,962	: .03	: 7,349
Clearing right-of-way	: Ac.	: 103	: 75.00	: 7,725
Right-of-way easements	: Ac.	: 231	: 105.52	: 24,375
Crossings	: Ft.	: 276	: 40.00	: 11,040
Clearing and Snagging	: Mi.	: 2.6	: 200.00	: 520
Total construction cost	: xx	: xx	: xx	: 153,533
Engineering cost	: xx	: xx	: xx	: 15,353
Contingencies and legal	: xx	: xx	: xx	: 15,353
<hr/>				
Total installation cost				: 184,239
Annual equivalent - installation cost (amortized for 20 years at $3\frac{1}{2}$ percent)				: 12,963
Annual Maintenance cost				: 7,677
Total annual cost of required group facilities				: 20,640

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
 Project: Yazoo Backwater
 Reach: Area 4
 State: Mississippi

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS AND ASSOCIATED COSTS

(1)	:	(2)	:	(3)
Item	:	Total	:	Discounted
	:		:	amount
	:	<u>Dollars</u>	:	<u>Dollars</u>
1. Net return with project	:	581,470	:	
2. Net return without project	:	351,251	:	
3. Gross benefit to project	:	230,219	:	161,206 <u>1/</u>
4. Farm Drainage cost	:		:	
a. Installation cost	:	24,111	:	
b. Maintenance cost	:	21,536	:	
c. Total	:	45,647	:	36,187 <u>2/</u>
5. Group drainage cost	:		:	
a. Installation cost	:	12,963	:	
b. Maintenance	:	7,677	:	
c. Total	:	20,640	:	18,995 <u>3/</u>
6. Conversion cost	:		:	
a. Installation cost	:	27,838	:	
b. Maintenance cost	:	10,202	:	
c. Total	:	38,040	:	30,156 <u>4/</u>

- 1/ Discount factor for 15 years @ 5% - .70023
2/ Discount factor for 10 years @ 5% - .79275
3/ Discount factor for 5 years @ 3 1/2% - .92028
4/ Discount factor for 10 years @ 5% - .79275

MISSISSIPPI RIVER & TRIBUTARIES STUDY

Basin: Yazoo
Project: Yazoo Backwater
State: Mississippi

TABLE IX
SUMMARY OF ANNUAL NET PRODUCTION RETURNS AND ASSOCIATED COST
FOR ENTIRE PROJECT

(1)	:	(2)	:	(3)
Item	:	Total	:	Discounted
	:		:	amount
	:	<u>Dollars</u>	:	<u>Dollars</u>
1. Net return with project	:	14,899,257	:	
2. Net return without project	:	10,877,933	:	
3. Gross benefit to project	:	4,021,324	:	2,079,345
4. Farm drainage cost	:		:	
a. Installation cost	:	402,686	:	
b. Maintenance cost	:	365,916	:	
c. Total	:	768,602	:	444,985
5. Group drainage cost	:		:	
a. Installation cost	:	100,354	:	
b. Maintenance cost	:	60,496	:	
c. Total	:	160,850	:	125,768
6. Conversion cost	:		:	
a. Installation cost	:	540,229	:	
b. Maintenance cost	:	624,892	:	
c. Total	:	1,165,121	:	672,488



BOUNDARY AND
OUTER LIMITS
OF PROJECT



COUNTY LINE



RIVERS AND
STREAMS



LOCATION MAP

YAZOO BACKWATER PROJECT

MISSISSIPPI

SCALE 1:500,000

